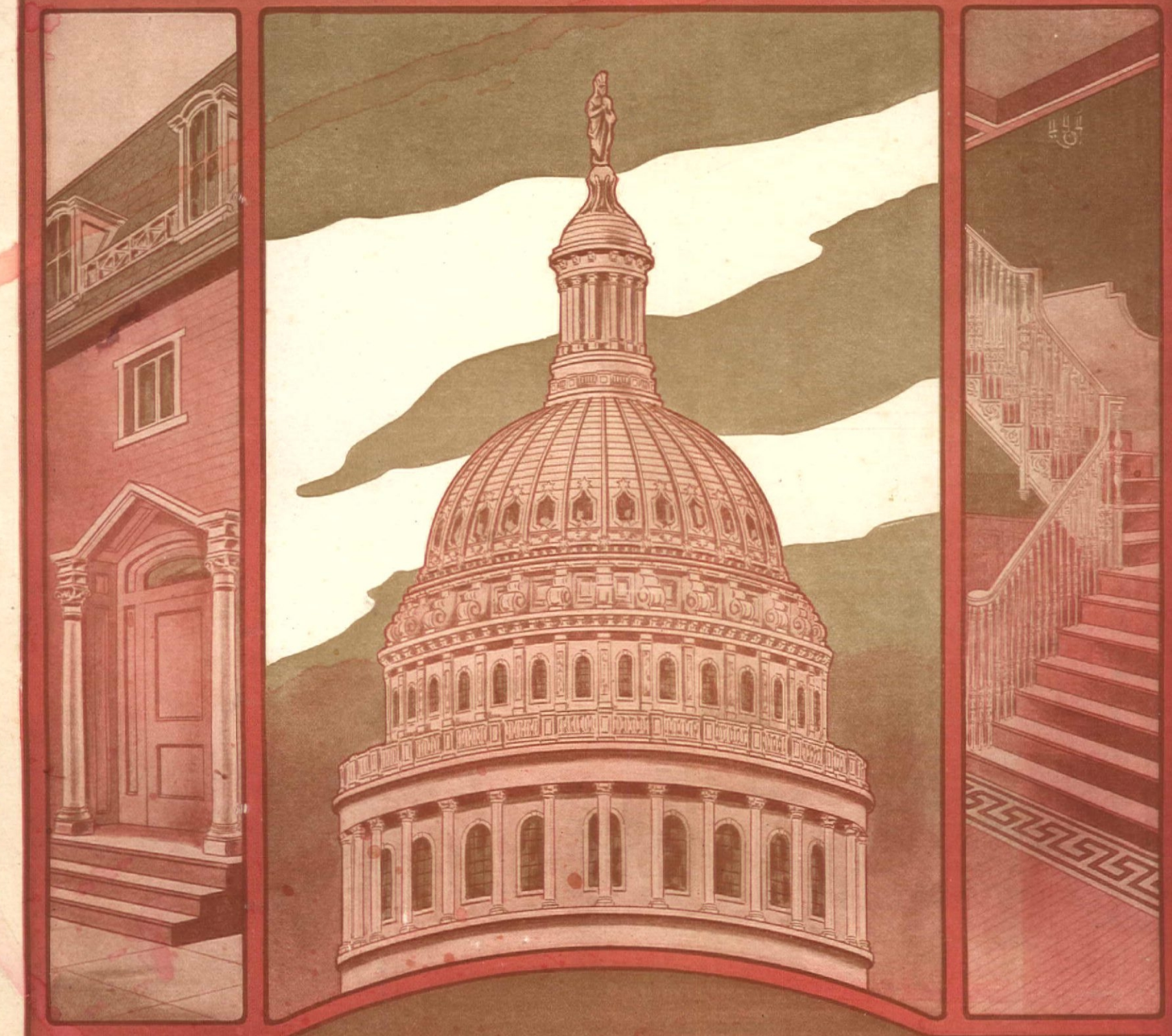
MORE COPIES
PRINTED AND CIRCULATED THAN ANY OTHER BUILDING PAPER IN AMERICA.

THE NATIONAL BUILDER



PUBLISHED
On The 15th Day Of Each Month
Twenty Cents Per Copy Two Dollars Per Year

JUNE, 1911

DISSTON



INSULATE SCREW DRIVER

This tool is designed expressly for Electricians' use.
The blade of crucible steel, hardened and tempered, is embedded in a handle of hard rubber of a texture that eliminates brittleness. It *will not* work loose.
The rubber handle is milled grip with projecting rings which prevent the hands from slipping down onto the blade.
The hard rubber handle acts as insulation.
The Disston Insulate Screw Driver is something new.
Most practical electricians' screw driver ever made.

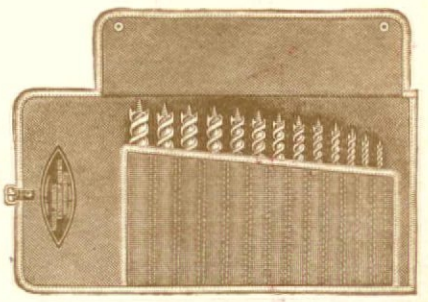
HENRY DISSTON & SONS

INCORPORATED

Keystone Saw, Tool, Steel and File Works

Philadelphia, Pa.

BRANCHES: Chicago Boston Cincinnati New Orleans Memphis San Francisco Seattle Portland Spokane Toronto Vancouver



FOR MORTISING DOORS
And Similar Work

"RUSSELL JENNINGS"
AUGER BITS

in new set—22½ QUARTERS

HARDWOOD TOOL BOX
OR CANVAS ROLL

Contain 11 bits—4, 5, 6, 7, 8, 9, 10, 11 and 12 sixteenths, standard thread, and 8 and 10 sixteenths, quick-boring threads for end-grain boring and gummy woods.



RUSSELL JENNINGS MFG. CO.

CHESTER, CONN., U. S. A.

21-42

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

BISHOPRIC WALL BOARD AND SHEATHING

ANY WEATHER is "Good Building Weather" when you use Bishopric Wall Board as a substitute for lath and plaster. It is cheaper and better and does away with all delays in building. It is nailed to studding dry, ready for immediate application of paper, paint, burlap, or any other kind of decoration.

FOR WALLS AND CEILINGS



Bishopric Wall Board Easily Applied

This substitute for lath and plaster is made of kiln-dried, dressed lath, imbedded in hot Asphalt Mastic, surfaced with sized cardboard and cut at the factory into 4x4 ft. sheets, which are easily and quickly nailed to studding, ready for immediate application of wall paper, paint, burlap, or other decoration.

It is applied dry, is guaranteed not to swell, shrink, warp, crack, flake or blister; is clean, sanitary, and odorless; is proof against moisture, cold, heat, and vermin; saves fuel in winter and keeps out summer heat; also deadens sound.

It is suitable for dwellings, factories, new partitions in old buildings, finishing attics, porches, laundries, cellar ceilings, garages, etc.



Shows Construction of Bishopric Wall Board.

PRICE WALL BOARD AND SHIPMENT — Crate of 16 sheets, covering 256 square feet of surface, $6.40 per crate, or $2.50 per 100 square feet, f. o. b. New Orleans, La., Cincinnati, or Alma, Mich. We ship from nearest point.

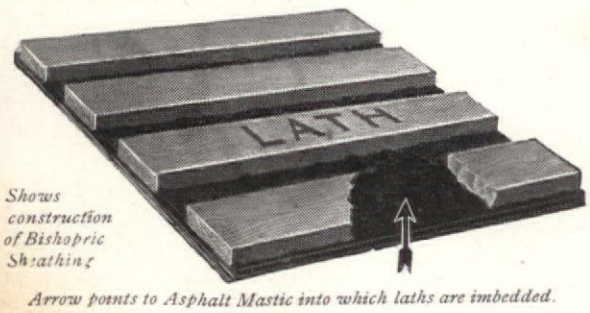
Cheaper Than Lumber. Saves 75% on Labor. Does away with Building Paper.

BISHOPRIC SHEATHING

Ideal Material for Cement Buildings or Stucco Exteriors. Proof against Dampness.

Bishopric Sheathing is made of same materials as Wall Board, but finish is not necessarily so fine, therefore costs less. It is of uniform thickness, insuring a perfectly even surface when applied.

Bishopric Sheathing is nailed to studs, with lath and asphalt side exposed. Over laths, weather boards are nailed or cement applied.



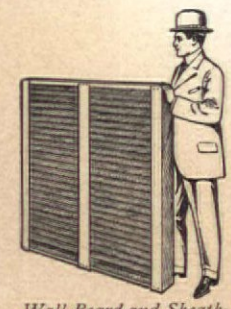
Shows construction of Bishopric Sheathing

Arrow points to Asphalt Mastic into which laths are imbedded.

Bishopric Sheathing makes a more solid and substantial wall than lumber. There are no gaping joints; no widening cracks due to shrinkage; no knot holes.

The Asphalt Mastic in Bishopric Sheathing is a non-conductor, moisture cannot penetrate it. It is proof against vermin. The pests cannot bore through the tough, gummy Asphalt Mastic. In applying weather-boards over the laths, dead air space is left between the laths forming splendid insulation. Does away with the expense of building paper and cost of its application.

One Wagon load of Bishopric Sheathing covers an area from six to ten times as great as one load of lumber—a tremendous saving in hauling. Five thousand feet can be hauled in an ordinary wagon.



Wall Board and Sheathing are shipped in crates

The cost of applying Bishopric Sheathing is but $2.50 per 1000 feet—A SAVING OF ABOUT 75 PER CENT. Furthermore, 1,000 square feet of wood sheathing covers but 750 feet of surface, 20% less being due to tongue and groove. In Bishopric Sheathing 1,000 square feet covers 1,000 square feet of space

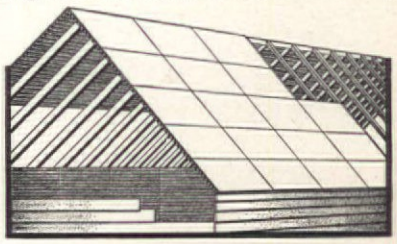
In applying ordinary lumber, heavier scaffolding, more tools and greater scaffold floor-space are required In applying Bishopric Sheathing, one man drives a few nails in each sheet; a common laborer or boy can finish the nailing.

Bishopric Sheathing insures comfort during the construction of the building. As soon as the building is closed in with Bishopric Sheathing, the men may work in comfort on the inside during bad weather, finishing the outside on suitable days. This insures continuous work, without loss of time, enabling the contractor to hold his men and complete the work in the least possible time.

Bishopric Sheathing is used with equally splendid results under flooring and as a substitute for roofing boards. Used under floors, it serves as a sound deadener and keeps out dampness; used under the shingles, it keeps out summer heat.

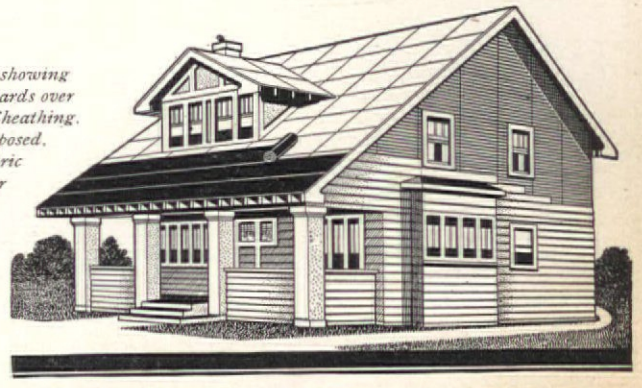
ITS MANY USES—Bishopric Sheathing also is used with excellent results as a lining for dairy barns, ranch houses, poultry houses, driving stables or any out-door building where protection from the elements, Summer or Winter is desired.

Bishopric Sheathing is the ideal material for cement exterior or stucco work. Cement firmly adheres to the laths and Asphalt Mastic and makes a solid, smooth exterior. For factory or residence this form of cement or stucco construction is the cheapest and best known.



Shows Bishopric Sheathing over rafters ready for Bishopric Roofing, also Weather-boards over Bishopric Sheathing.

Ideal home showing Weather-boards over Bishopric Sheathing, lath side exposed, also Bishopric Roofing over Bishopric Sheathing. (smooth side of sheathing exposed)

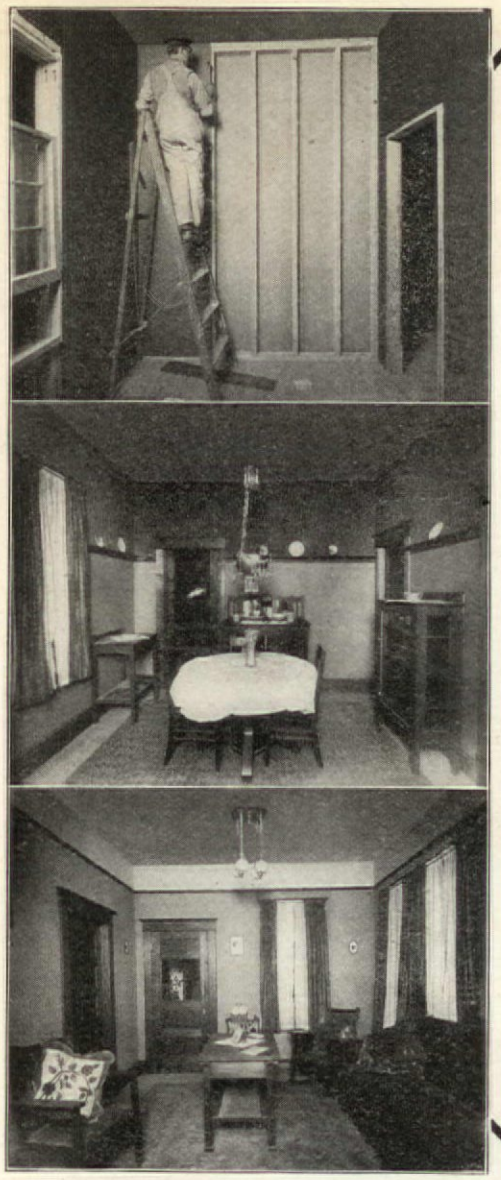


PRICE SHEATHING AND SHIPMENT — Crate of 16 sheets, covering 256 square feet of surface, $6, or $2.35 per square of 100 square feet, f. o. b. New Orleans, La., Cincinnati or Alma, Mich. We ship from nearest point.

Write for Descriptive Booklet and Samples of Bishopric Wall Board, Bishopric Sheathing and Bishopric Roofing—All will be sent free.

The Mastic Wall Board and Roofing Manufacturing Co., 27 East Third Street CINCINNATI, OHIO

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.



Utility Wall Board

Is Used on Walls and Ceilings of These Artistic Rooms

The first illustration shows how easily Utility Wall Board can be applied. The other two illustrations show how nicely wall paper can be applied on walls and ceilings lined with Utility Wall Board.

Does it not look good to you?

Wouldn't you like to have us send you a sample of it—and tell you how economical it is—How easily it is applied—How artistically it can be decorated?

Our *beautiful illustrated booklet* tells the whole story—and shows pictures of artistic interiors. It is free for the asking, together with a sample of Utility Wall Board.

UTILITY WALL BOARD

is unlike any other Wall Board you have ever seen—It is made of exceedingly tough, durable fibre, thoroughly waterproofed—No moisture can penetrate it—It is applied directly to the studding, taking the place of both lath and plaster—Any carpenter can put it on—It will last as long as the house stands—You'll be amazed at the convenience of it—the economy of it—the beauty of it.

Mr. Contractor: This is your chance to make more money and finish your jobs quicker. UTILITY WALL BOARD is right in quality and price. It has come to stay and is rapidly taking the place of lath and plaster.

Every up-to-date contractor and builder should get samples of UTILITY WALL BOARD at once. There are hundreds of places it can be used with a profit to you and satisfaction to the owner.

Remember that all delays of the plasterer are a thing of the past for those who use this modern wall lining.

Don't fail to send for the sample and booklet at once—ask for our special proposition to contractors and builders

UTILITY WALL BOARD is Sold Through Dealers in Building Material Everywhere

THE HEPPES COMPANY

4502 Fillmore St., Chicago, Ill.



SEE THAT

Compo-Board

IN IN YOUR SPECIFICATIONS

It is the most satisfactory wall lining yet devised. It will last longer than lath and plaster.

Compo-Board is easily and cleaply put on, and the walls will look well as long as the building lasts. They will never be disfigured with ugly cracks or blemishes from moisture accumulating on the walls. Will not crumble, crack or fall off. Cannot be marred by jamming furniture into them. ¶ Compo-Board makes dry, warm, moisture-proof, fire-resisting walls, ceilings and partitions. The rooms will be free from draughts, warm in winter and cool in summer. ¶ Not only is Compo-Board a superior wall lining, but it has many uses around the house, in offices and factories. ¶ It is made of thoroughly seasoned, kiln dried strips of lumber well glued together. They are covered with a thick coat of cement on either side and an outside covering of thick paper.

You can buy it in strips four feet wide and one to 18 feet long, any length you want in even feet. **Send for BOOKLET and SAMPLE.**

It explains the many uses and advantages of Compo-Board and you can get an idea of what it is from the sample.

NORTHWESTERN COMPO-BOARD CO.
5776 Lyndale Ave. No., Minneapolis, Minn.

The border of this advertisement is a cross section view of Compo-Board.

Johnston's DULL KOTE PAINT

PAINT Wall Board

In order that it be SANITARY, BEAUTIFUL and LASTING

If every Architect, Contractor and Owner in the country knew of the REAL MERIT and ECONOMY of Wall Board and the decorative and artistic possibilities of this material when finished with

Johnston's WASHABLE Dull Kote Paint

we assure you more Wall Board would be sold and a dozen factories could not supply the demand for Dull Kote Paint.

Write for free color folder and suggestions for Interior Decoration. It will show you why you should specify and buy JOHNSTON'S Dull Kote Paints.



The R. F. Johnston Paint Co.

Pearl and Main Streets

CINCINNATI, OHIO

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

SAP GUM

The success of ***RED GUM*** in New York building operations—both large and small—has been most pronounced.

Any builder who wants to be up-to-date may find several hundred high class apartment buildings and residences in which ***RED GUM*** has been selected for the interior trim because of its beauty and value.

SAP GUM

(which comes from the same tree) is not yet so generally known perhaps because it lacks the superb grain and color of ***RED GUM*** and because it is usually used where it does not show. (***SAP GUM*** is the ONE BEST WOOD known for WHITE ENAMEL TRIM, for instance.)

Builders who don't yet know about ***SAP GUM*** will find it is thoroughly reliable when properly manufactured, and will find, furthermore, that ***SAP GUM*** has all the good qualities of many of the woods hitherto used merely through force of habit.

Get any of the following trim manufacturers

F. Eckenroth & Son
921 East 5th Street, New York City
Empire City-Gerard Co.
40 East 22d Street, N. Y.
David Gilmour Door Co., Buffalo, N.Y.
Harlem River Lumber & Woodworking Co.
Grand Avenue and 138th Street, N. Y. C.
H. Herrmann Lumber Co.
254 Canal Street, N. Y. C.
Jamestown Mantel Co.
271 West 125th Street, N. Y. C.
Kertscher & Co., 13 Lawrence St., N. Y. C.
C. R. Macaulay
18th Street and 5th Ave., Brooklyn, N. Y.
Lewis Marx & Son
Tompkins & Delancey Sts., N. Y. C.
Murray & Hill Co.
143d Street and Southern Boulevard
H. W. Palen's Sons 1 Madison Ave. N.Y.C
Niagara Wood Working Co.
159 East 88th Street, N. Y. C.
Weisberg-Mark Co.
Astoria, N. Y.
Yerks & Co.,
32 N. Broadway, Yonkers

to make you a quotation on good ***SAP GUM*** in places where you would otherwise use other woods, and you will be glad to find

YOU WILL SAVE SOME MONEY

without any loss of value whatever, and with an increase of prestige.

HIMMELBERGER-HARRISON LUMBER COMPANY, Cape Girardeau, Missouri
CARRIER LUMBER & MANUFACTURING COMPANY . Sardis, Mississippi
BAKER LUMBER COMPANY . . . . . Turrell, Arkansas
ANDERSON-TULLY COMPANY. . . . . Memphis, Tennessee
THREE STATES LUMBER COMPANY . . . . . Memphis, Tennessee
CHARLES F. LUEHRMANN HARDWOOD LUMBER CO., . . St. Louis, Mo.
LAMB-FISH LUMBER COMPANY . . . . . Charleston, Mississippi

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

CHICAGO GRILLE WORKS

1892 1911

WHY NOT?



A little grille work adds greatly to the beauty of your house and costs very little.

Try the **manufacturer** with your next order of Grille Work Colonnades, Consoles and Interior Columns. You may be agreeably surprised with prices and promptness in shipment. **Why not** send us your next order? We have thousands of well pleased customers; if you are not one of them, **why not** write today for our **Catalog No. Nineteen** and find out what we have to offer you in the way of interior decoration? Every dollar spent with us adds five to the value of your home.

828-838 Wells Street, Chicago, Ill.

Use Pearson's Nailers

FOR ANY PITCHROOF — OR — ON A LEVEL



Thousands of Pearson's Nailers are now being used by carpenters and builders on their shingling jobs with the most satisfactory results.

Pearson's Nailers Are Light, Strong and Fast

The nails can be dumped into it any old way and they will always drop automatically into place, ready to be driven in with the hammer. They do away with that old, unsanitary way of carrying nails in the mouth. The operator can wear gloves or mittens when shingling. A Pearson Nailer will pay for itself on a fair sized job.

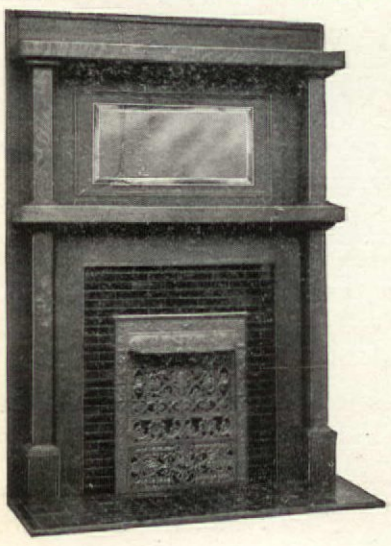


Pearson's Nailers are made in two sizes, the Blue Nailer is for common 3d No. 14 wire nails and the Red Nailer is for Galvanized 3d No. 13, 1¾ in. wire nails

Order one now, stating Nailer wanted. You are taking no risk, for we refund your money if not satisfied after a trial. Price **$5.00** each, and **we will pay express charges if ordered now**, before our big rush sets in.

Write for circular "N" and use a Nailer on your next job of shingling.

Pearson Manufacturing Co., ROBBINSDALE, MINN.



$25.85

For this Elegant, Massive Selected Oak or Birch, Mahogany finished Mantel.

"FROM FACTORY TO YOU"

Price includes our "Queen" Coal Grate with best quality enameled tile for facing and hearth. Gas Grate $2.50 extra. Mantel is 82 inches high, 5 feet wide. Furnished with round or square columns, full length or double as shown in cut.

Dealers' price not less than $40.00.

"REPUTATION AND QUALITY COUNT"

CENTRAL MANTELS

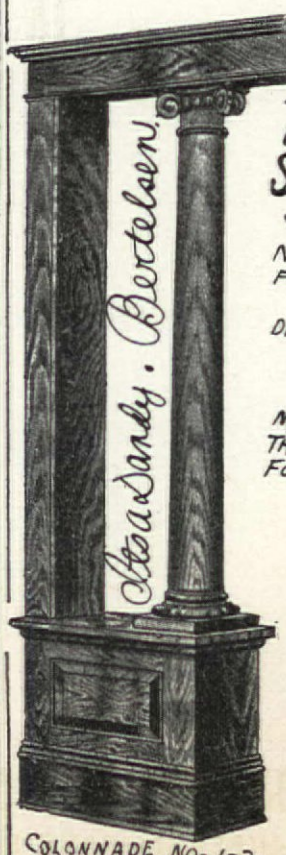
are distinctive in workmanship, finish and style. Twenty years' experience enables us to know and satisfy the needs of those who want Mantels of quality, different from the rest. We build all styles, Colonial to Mission.

CATALOGUE FREE. Will send our 112-page Catalogue, the finest ever issued, free, to carpenters, builders and those building a home.

CENTRAL MANTEL COMPANY

1237 Olive Street, St. Louis, Mo.

$8.50 FOR THIS COLONNADE



COLONNADE NO. 1-2

A VERY LOW PRICE FOR THIS STRICKING NEW COLONNADE

MATERIALS AND WORKMANSHIP FIRST CLASS THROUGHOUT.

DESCRIPTION OF COLONNADE.
SIDE CASINGS AND CAP TRIM NOT INCLUDED
MADE FOR 5¾-INCH JAMBS
MADE IN OAK OR YELLOW PINE, IN THE WHITE, HAND SMOOTHED, READY FOR FINISHING

PRICES
ANY HEIGHT NOT OVER 9 FEET.

Style No. 1-2 EACH...$ 8.50 PER PAIR 17.00

Columns are 6 inches in diameter, tapering to receive 5-inch compo. cap, pedestals are 20 inches high over all and the width is 24 inches over all, and when set in to receive casings extension from jamb is 18 inches. Top shelf is 10 in. wide.

Style No. 2-2 EACH...$ 9.00 PER PAIR 18.00

Same measurements as above, only pedestals are 30 inches wide over all and when set in to receive casings extension from jamb is 24 inches.

SEND YOUR ORDER NOW, DONT LET IT GET AWAY FROM YOU.

BERTELSEN ADJUSTABLE GRILLE CO. 619. S. CLINTON ST. CHICAGO.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

BEFORE YOU BUY A FOOT OF LUMBER

FOR ANY PURPOSE, big or little, indoors or out, in city or country,

Write for the proper volume of The Cypress Pocket Library. (Free)

CYPRESS DEFIES DECAY

Backed by our "All-round Helps Dept.," it is the "guide, counselor and friend" of

ALL THE PEOPLE WHO CARE

WHAT *VALUES* THEY GET for their LUMBER MONEY.

CYPRESS AVERTS REPAIR BILLS

Why not buy WOOD with the same discrimination you apply to other things?

We do not advise CYPRESS for *all* uses, but *only* where it can *prove* itself "the one best wood" for *your* use.



1 You don't tell your broker: "Buy $10,000 of Railway stocks!" Hardly! You tell him *what*.

2 You don't simply tell your Real Estate agent: "Buy me 'some land'!" You tell him *where*.

3 You don't tell the dry goods clerk: "I want 8 yards of *cloth!*" You say "silk," "wool," or "linen."

4 You don't merely order "200 head of live stock!" You specify Horses, Cattle, etc., *and the Breed*.

5 You don't tell the contractor: "Build me a house!—and paint it!" You dictate the *plans*. And the *colors*.

WHY NOT BUY **LUMBER** WITH EQUAL CARE? INSIST on **CYPRESS**—"THE WOOD ETERNAL."
WRITE AT ONCE for **VOL.** of **CYPRESS PKT. LIBR.** that fits your case. **WE'LL REPLY AT ONCE.**

THESE VOLUMES MAY BE HAD NOW:

5. How to Avoid Mistakes in Bungalows.
9. CYPRESS for SIDING—and Why.
22. Cypress SILOS and Tanks (of course.)
18. Cypress Bungalow "A" (Complete Working Plans and Specifications Free.)
6. Cypress Bungalow "B" (Complete Working Plans and Specifications Free.)
3. Cypress, "Only GREENHOUSE Wood."
29. Cypress Shingle House (Free Working Plans and Specifications.)
16. Cypress for Porches, etc., and the Reasons.
31. Cypress' Great Beauty for Interior Trim.
12. "The Wood Eternal" for Exterior Trim.
30. Cypress Pergolas, etc. (8 Working Plans Free.)
7. Cypress Shingles "Yes Book" (Last a century.)

THESE IN PREPARATION—APPLY NOW:

10. Cypress for Artistic Doors (a revelation.)
2. "Pecky" Cypress—"The Vaccinated Wood."
4. Cypress "& Nothing Else." for BARNS, etc.
1. "The Wood Eternal"—What It IS (incl. U. S. Govt. Report.)
8. Cypress Bungalow "C." (Free Working Plans and Specifications.)
28. Cypress for All Trellises and Arbors.
15. Cypress for Dairy Uses—"The Only Wood."
19. Cypress for Canoes and Boats (defies decay.)
24. What People (who *know*) SAY of Cypress."
26. Japanese Effects (Sugi) in Cypress.
11. Cypress for Sash, Blinds and Frames.
14. Cypress for Gutters, Curbs and Culverts.
23. Cypress "Perfect for Exterior Painting."
25. "Perfect for Interior Painting and Staining."
27. As a "Preventive of Proper y Depreciation."
20. Cypress for All FARM Uses.
33. "How I Finish Cypress," by a Craftsman.
32. "Caustic Surfacing of Cypress," (novel.)
21. Cypress for "All Outdoors" (of course.)
17. Cypress for All "Odd Jobs" (of course.)

When Planning a Mansion, Bungalow, Pergola, Pasture-Fence or Sleeping Porch, remember—"*With CYPRESS you BUILD BUT ONCE.*"

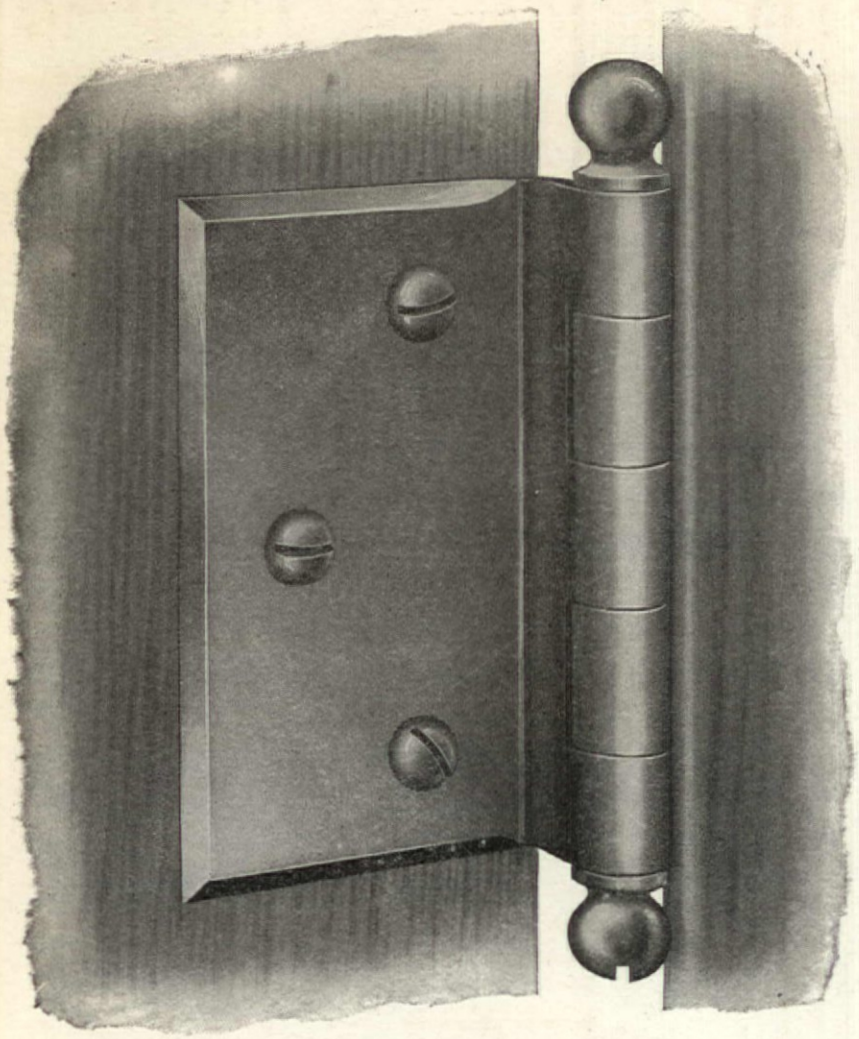
Let our "ALL-ROUND HELPS DEPARTMENT" help YOU. Our entire resources are at your service with reliable Counsel.

SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION

1212 HIBERNIA BANK BUILDING, NEW ORLEANS, LA.

INSIST ON CYPRESS OF YOUR LOCAL LUMBER DEALER. IF HE HASN'T IT, *LET US KNOW IMMEDIATELY.*

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.



No. 450 —CUT FULL SIZE, 3½ INCH

WE INITIATE—NEVER IMITATE

A Big Hit

Is the new tip with which "NATIONAL" Butts are now equipped, both Common and Ornamental.

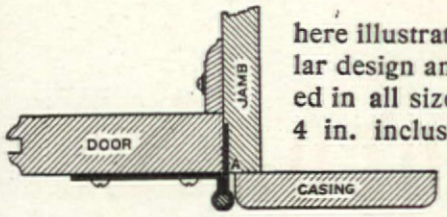
The TIP is threaded and screws into the Butt in both the Japanned and Plated finishes.

It is also SLOTTED for A SCREW DRIVER, making it easy to remove the tip and affords ready access to the pin.

The slot also indicates instantly which is the bottom of the butt—a feature greatly appreciated by the carpenter.

These are exclusive "NATIONAL" features.

Style No. 450

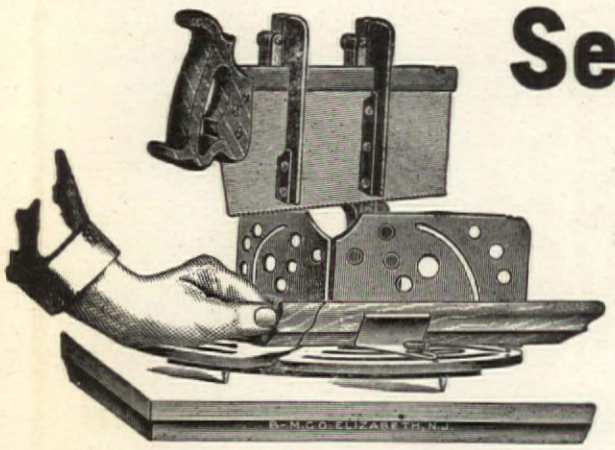


here illustrated is a very popular design and can be furnished in all sizes from 1½ in. to 4 in. inclusive. These butts are highly polished, double plated and have beveled edges. They match escutcheon plates with beveled edges. Ask for "Catalog B" and give dealer's name.

NATIONAL MFG. CO., STERLING, ILL.

DORN'S REVOLVING MITRE BOX

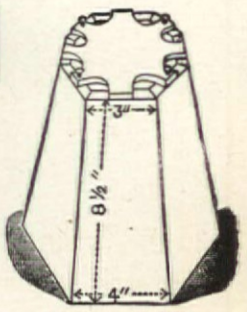
A MITRE BOX FOR A LIFE-TIME



Sent on 10 Days Trial

The Famous Dorn Revolving Mitre Box. Will saw compound as well as plain mitres any width with a back saw 4 inches wide.

Price of Mitre Box without saw $10.75 F. O. B. at Elizabeth, N. J.



Compound Mitre

Send for Booklet Called "Tools That Last"

OUR "CHISEL" GUARANTEE

We guarantee that our chisels will hold their edge all day with one sharpening, even if used on quartered oak across the grain.

Chisels look simple, but there is no tool of which such hard work and varied service is required. Recognizing this we have given the choice of the steel, regardless of cost, and the design of these chisels, the most extensive study and experimentation, and in their manufacture the greatest care and highest order of skill is employed.

SPECIAL OFFER

To further increase the number of carpenters who insist on having B. M. Co. Chisels we will sell direct to readers of the National Builder, express prepaid, any chisel or set of chisels with privilege of returning after ten days trial if they do not prove to be the BEST EVER USED.



BEVELED EDGE BUTT CHISEL



SOCKET BUTT CHISEL

BRAUNSDORF-MUELLER CO., - - - Elizabeth, N. J.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

THE Building Season is here—It promises to be a very busy one—keep up with the pace by always having your tools with a keen, smooth edge—an edge that you can get so much quicker and easier if your tool kit contains a

Carborundum Sharpening Stone



Always free, clean and extra fast cutting—never filled or slick, the round Carborundum Combination Stone is ideal for carpenters' use. Shaped to allow for rotary motion in sharpening chisels, plane bits, etc. For cabinet makers' tools, etc., requiring an extra fine, delicate edge, there is the Carborundum extra hard, extra fine stone.

Carborundum round combination stone, No. 107 - - - - -	$1.00
Carborundum extra hard, fine stone, No. 156 - - - - - -	1.00
Carborundum oblong stone, No. 108	1.00
Carborundum pocket stone in leather case	.35

FROM YOUR DEALER OR DIRECT

THE CARBORUNDUM COMPANY
NIAGARA FALLS, N. Y.

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It beats shingles. They warp, crack, split, and rot—more so now than ever before (lumber is getting scarcer, and shingle-quality is becoming poorer every year).

Beats tin, which rusts and needs painting regularly. And even with paint tin doesn't last like it used to—quality has deteriorated here, also.

Coal tar roofings have the same old faults they have always had—get soft and melt in the summer sun, and get brittle and crack in the cold, and leak.

Genasco

the Trinidad-Lake-Asphalt Roofing

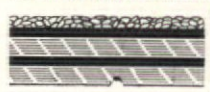
is the one roofing that lasts. It is made of Nature's everlasting waterproofer. Trinidad Lake Asphalt has withstood the suns and storms of centuries; and in Genasco it gives this same lasting resistance to sun, rain, snow, wind, heat, cold—and even fire. The oily nature of this natural asphalt keeps Genasco alive and strong to defend itself; and this is why Genasco is lastingly waterproof.

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Ask your dealer for Genasco mineral or smooth surface Roofings with Kant-leak Kleets packed in the roll. Guaranteed, of course. Write us for samples and the Good Roof Guide Book.

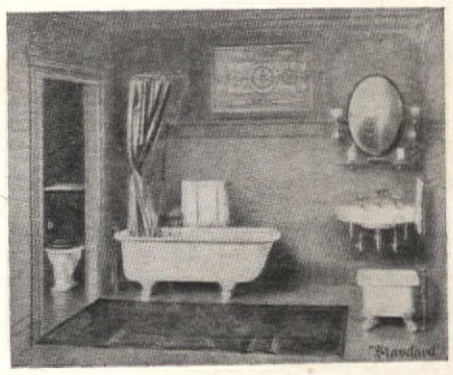
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Largest producers of asphalt, and largest manufacturers of ready roofing in the world.
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New York San Francisco Chicago

Cross-section Genasco Stone-surface Roofing



Gravel.
Trinidad Lake Asphalt.
Asphalt-saturated Wool Felt.
Trinidad Lake Asphalt.
Asphalt-saturated Wool Felt.

$38.95 BUYS COMPLETE BATHROOM OUTFIT



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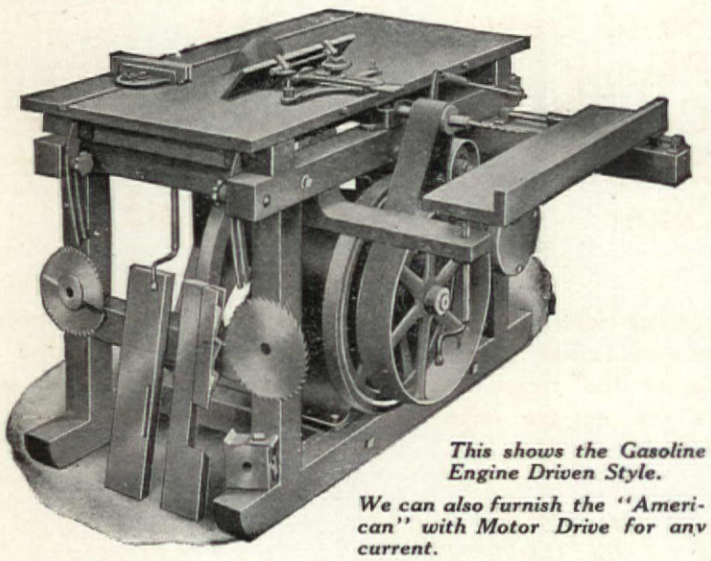
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JOHN HARDIN & CO.

Established 1876
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CHICAGO

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

DO YOUR MILL WORK ON THE JOB WITH THE "AMERICAN" PORTABLE SAW BENCH



This shows the Gasoline Engine Driven Style.

We can also furnish the "American" with Motor Drive for any current.

How often you have wished that your job was near the mill, so you could do a large part of your work by machine, instead of by hand.

An "American" Portable Saw Bench on your work will put mill facilities right at hand; and the time and labor this will save you means money in your pocket.

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For the "American" Saw Bench is not a "one-job" tool. **It is built to the "American" standard, which means that it will prove a permanently profitable investment, year after year.**

An "American" Saw Bench is the greatest money-maker a contractor can own.

Ask us to send you a descriptive circular.

AMERICAN SAW MILL MACHINERY CO.

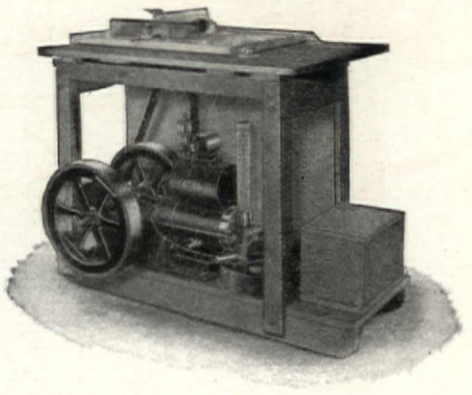
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HACKETTSTOWN,
NEW JERSEY

1650 Hudson Terminal
NEW YORK CITY
NEW YORK

$165.00

For this Portable Saw Rig Complete 9 Machines in One.



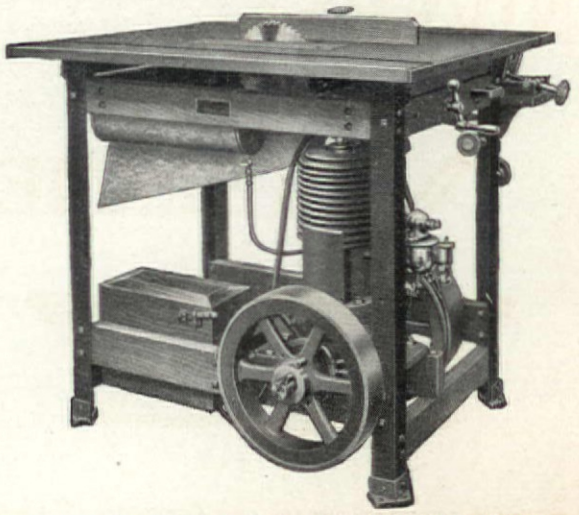
Will rip 2" and cross cut 3" lumber. Write for descriptive folder.

C.H.&E. Manufacturing Co., Inc.

319 Mineral St. Milwaukee, Wis.

Have You Investigated

The Grimm Woodworker



Type "A" with 4 H.P. Gasoline Engine. Weight equipped for work 350 lbs.

Nine Machines in One

8-inch Rip Saw	Boring Machine (3 bits)	4-inch Jointer
8-inch Cross Cut Saw	Moulder (8 prs. knives)	Jig Saw (3 blades)
6-inch Dado Head	10-inch Sander	Two Emery Wheels

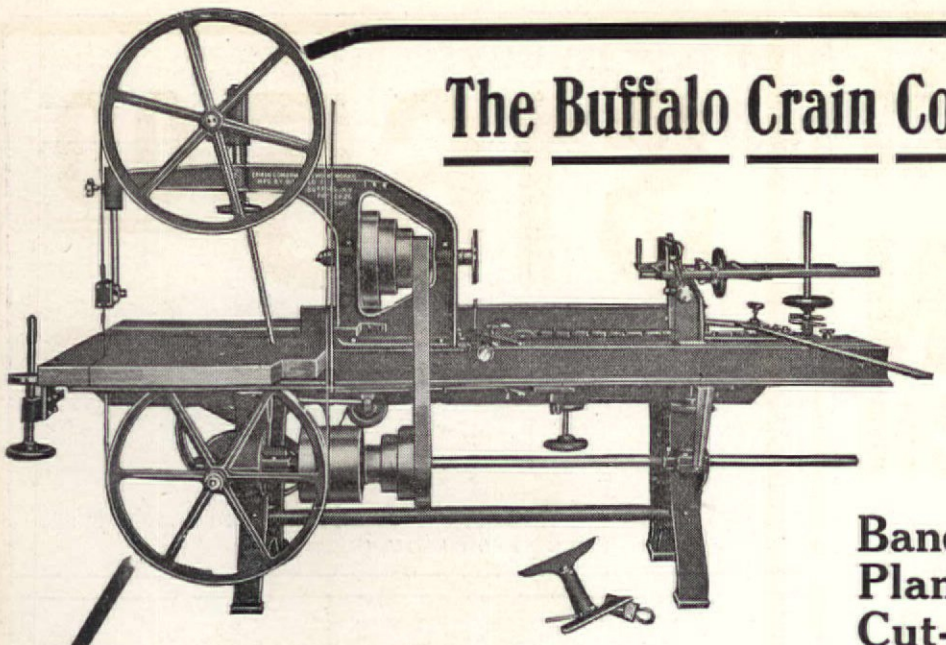
Progressive building contractors are fast coming to realize the importance of substituting practical machines for hand labor. The **Grimm Woodworker,** furnished either with gasoline engine or electric motor and combining so many important attachments in one machine, is undoubtedly one of the greatest time, labor and material savers yet brought out.

Write for descriptive booklet and our attractive selling plans.

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The Buffalo Crain Combination Wood Worker

Strong — Simple — Large Capacity

12 Operations in One Machine without any extra attachments.

Investigate and be convinced! For a thoroughly practical machine — substantial in construction and design, of ample capacity, low power cost, ease of operation, and dependability — you can't beat the Buffalo machine. It is a

Band Saw **Rip Saw**
Planer **Lathe**
Cut-off Saw **Boring Machine**
Shaper **Spoke Equalizer**
Sizer **Dado Head**
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combined in one compact machine. Three men can work at it at one time without interfering with each other. Practically every operation of daily occurrence in a carpenter and repair shop can be done on it. Made with 5″ or 10″ planer head. It is a great money maker and one of the finest investments a contractor, builder or carpenter can make. Let us send you some of the letters we receive from pleased customers almost daily. Complete description on request. *Ask for catalog No. 134-5.*

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TRADE MARK



4-A STYLE

$22.50 BUYS THIS TRIMMER COMPLETE with triangular gauge blocks which make it possible to do a large amount of special work on this machine.

F. O. B. Grand Rapids Michigan

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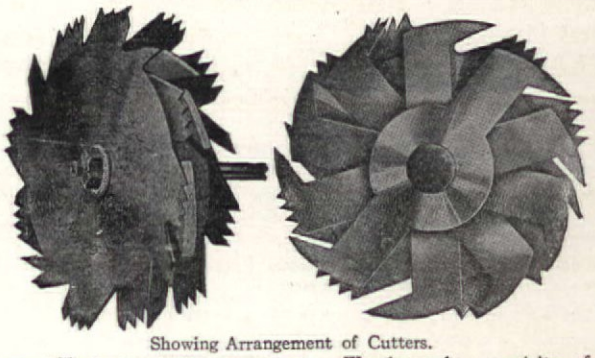
FOX **Machine Co.**

26 N. Front St., Grand Rapids, Mich.

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HUTHER BROS. PATENT GROOVER OR DADO HEAD

WILL SAVE COST IN THREE DAYS USE



Showing Arrangement of Cutters.

Can Be Used on Any Circular Saw Mandrel

For cutting any width groove from 1/8″ to 2″ or over. Will cut a perfect groove, either with or across the grain, and leave edges smooth. Will ship to any responsible firm on ten days' approval; if not satisfactory you are at liberty to return at our expense. We also make a specialty of concave ground smooth cutting circular Mitre Saws, for either rip or cross cut; Grooving Saws for all kinds of special work; Lock Corner Cutters, Concave Saws, Etc.

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PARKS' WOODWORKER

ALWAYS READY FOR INSTANT USE

The FIRST and ORIGINAL COMBINATION of Circular Saw, Jointer and Band Saw, ever placed on the market.

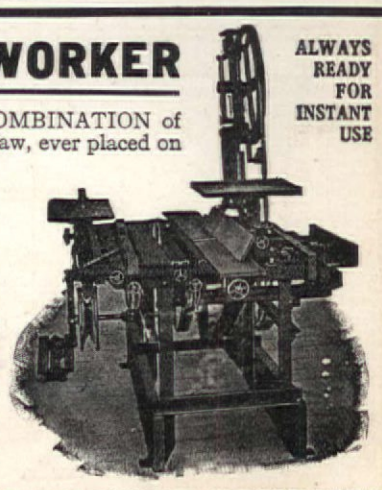
Reversible Spindle Shaper, Boring and a dozen other valuable attachments can be added.

Each machine is sold separate or can take a circular saw and add to it all desired.

The long base best arranged for Portable Use with engine attached.

BUY from the ORIGINATORS and LEADERS in improvements and you will be sure to get the best

Our Ball Bearing Machines are the greatest improvement ever made in Foot and Hand Power Circular and Band Saws. *Write for Catalog and Prices.*



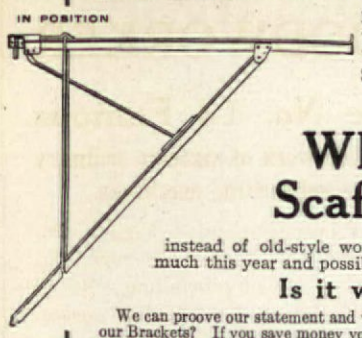
PARKS' BALL BEARING MACHINE COMPANY

KNOWLTON AND FERGUS STREETS **CINCINNATI, O.** Canadian Agts., Bournival & Co. St. Barnabe North, P. Q.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

If you had made $15

more on each frame house you built last year, how much more would your profits have been? If you built ten houses, the saving would have been $150.





If you use

Wheeler Safety Scafford Brackets

instead of old-style wood staging for scaffold, you can save that much this year and possibly more.

Is it worth saving?

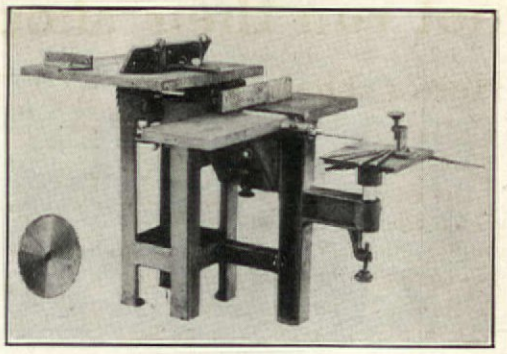
We can proove our statement and will do so without expense to you. Will you try our Brackets? If you save money you will be glad you tried our plan. If you do not save, it will cost you nothing to make the trial. You will save during first year, three to five times what the brackets cost and have them to use year after year. They never wear out. **Write today for our trial offer**

American Steel Scaffold Co., 50 McGraw Bldg. **Detroit, Mich.**

$95.00 BUYS 3 Machines { A SAW BENCH / AN 8" JOINTER / A MORTISER AND BORER

This combination machine is the best value ever offered. It is made of solid cast iron and is furnished complete with necessary tools, belt, etc. Each machine is distinct from the others, and can be operated without interference with them.

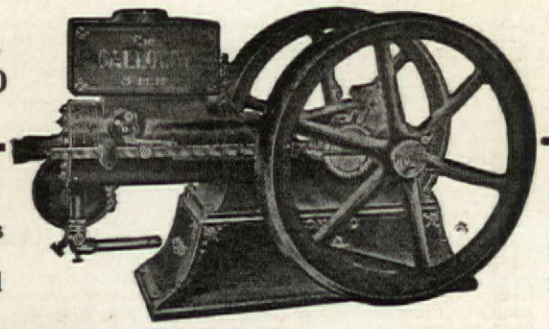
You should send at once for literature. It tells all about this new machine.



THE TANNEWITZ WORKS, 41 S. Front St., Grand Rapids, Mich.

WE SELL GASOLINE ENGINES

5 H. P. $119.50



1¾-28 H. P.

30 Days Free Trial

Built for Service

CONTRACTORS AND BUILDERS ATTENTION

Galloway Engines are made in all sizes from 1¾ to 28 H. P. They run on gasoline, naphtha, kerosene or distillate. We are furnishing complete mixing rigs and our price means a big saving of money to you—$50 to $300, depending on the engine you buy. You have the privilege of trying the outfit 30 days. If it is in any way unsatisfactory we refund your money with interest and pay freight both ways.

The Galloway Gasoline Engine

SIMPLEST ENGINE BUILT

Only four things to do:

Turn on the switch, turn on the oil, turn on the gasoline, give the flywheel a start and the Galloway will go right along all day without further attention. It is ideal power for a small shop, and it's got the capacity to take care of your growing needs for operating planers—matchers, lathes, saws and concrete mixers.

The Galloway has been classed as a standard, high grade engine for fifteen years. Over 4,000 n use in Iowa alone. Thousands in every other State and Territory.

If you try the Galloway engine, you will find that it is not overspeeded. Remember, the bore and stroke count, and you don't have to drive your engine faster than you ought to drive it to get the rated horse power. Rated by actual brake test.

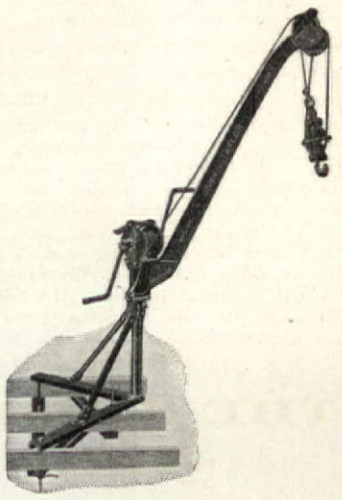
On the larger sizes, if it is not entirely convenient for you to pay all cash, we will take your note for the balance at the regular rate of interest for six months.

The price given is for the five-horse power only, but we make these engines in seven sizes.

Ask for free information on stationary and portable gasoline engines from two to twenty-eight horse power. We make the best, and we price them at a reasonable figure. Write today.

The William Galloway Company, 1695 Galloway **WATERLOO, IOWA**

Taylor Portable Steel Derrick, 2000 pounds capacity. Adjustable capacity and speed to three ways. One man operates both cranks and can hoist with ease 700 pounds. Weight 160 lbs. Made in two sections. A man can climb a ladder with either section. Beam section connects to post by tipping in a vertrcal position. Consider the durability of a derrick constructed of malleable iron and steel and that of wood, *more compact, more powerful.* Roller bearing circle swing. Clears side wall of building three feet. With special platform attachable to side of railroad gondola car for unloading water-pipe, etc. Price of derrick with three way block, brackets, and bolts for attaching to building, $40.00 f. o. b. Chicago.



Manufacturer

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1034 W. Lake St. - - Chicago

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COMPLETE OUTFIT FOR

Carpenters and Builders

IMPROVED FORMER. Has an adjustable table. Knives can be instantly reversed to suit the grain of wood. Speed of knife is 2,500 per minute, thus insuring smooth work.

IMPROVED NO. 7 SCROLL SAW. Warranted to be well made; will saw pine 3 inches thick at the rate of one foot per minute. Other woods in same proportion according to hardness.

We Make Sixty Styles of Knives

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Messrs. Smith & Seale, of Gloster, Miss., said they could not run their shop without the FAMOUS WOODWORKER

Here's Their Letter:

Gloster, Miss.

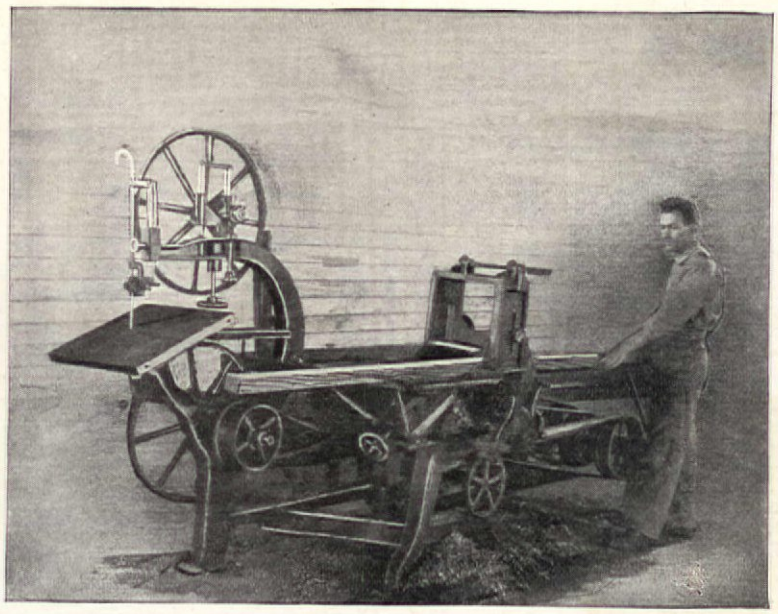
The Sidney Tool Co., Sidney, Ohio.

Gentlemen:—We have been using one of your No. 14 Universal Woodworking Machines, furnished with all attachments, for the past year and we believe it to be the most perfect woodworking machine on the market. Every attachment on this machine works perfect and does perfect work. We consider it the most up-to-date and complete machine ever made and we could not run a general repair shop without it.

We have not bought a buggy body, seat or wood part or gear, nor wagon axle, felloe round, bolster reach, or anything of the kind since we have had this machine. We buy our timber rough and cut out all such parts that we need, and we will be pleased to recommend this machine to any man running a general repair shop and will be pleased to answer any questions that any brother repair man should like to ask in reference to this machine.

Will endorse anything the Sidney Tool Co. has said in advertising this useful machine.

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SIXTEEN MACHINES IN ONE

1—27-inch Band Saw.
2—12-inch Jointer.
3—Saw Table, with raising and lowering arbor.
4—Single Spindle Shaper.
5—Boring Attachment, arranged on special boring spindle.
6—Pony Planer.
7—Tongue and Pole Rounder.
8—Hollow Chisel Mortiser.
9—Single End Tenoner.
10—Drum Sander.
11—Disc Sander.
12—Knife Grinder.
13—Emery Grinder.
14—Band Re-Saw.
15—Spoke Tenoner, Rim Borer and Wheel Equalizer.
16—Adjustable Felloe Rounder.

The No. 14 Famous

does the work of sixteen ordinary woodworking machines.

Your business pays the biggest profits when you eliminate millwork bills. You can do this by installing a No. 14 FAMOUS Universal Woodworker. Sixteen woodworking machines in one.

All the woodworking machinery you need is embodied in this one machine. It's not necessary to invest your capital in a *number* of machines when *one* is sufficient—when *one* does just as much as several and costs *less to buy and less to maintain.*

Over six hundred FAMOUS Universal Woodworkers are in use; and we are getting letters of indorsement every day. Not one has ever been returned; no user has ever found reason for dissatisfaction. Can any other universal woodworker show such a record? No, Sir!

Our guarantee covers the entire life of the machine. You take no chances whatever. Write for special terms and full particulars. Don't think you cannot afford one—you cannot afford to do without one. Write us today.

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"ALCOLAC" READY MIXED PAINTS are made of pure chemicals thruout—Linseed oil, Japan driers, lead carbonate, zinc oxide and pure tinting colors. Finishes with a hard glossy surface proof against gases, sea fogs, salt air and atmospheric changes—the enemies of all ordinary paints.

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Write for our Contract Proposition. Beautiful Celluloid Signs with every order
Handsome Sterling Silver Mounted Fountain Pen with every $25.00 order

Alcolac Mfg. Co., :: Long Island City, N. Y.

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THE NATIONAL BUILDER

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Charles A. Miller, Jr. } Associate Editors
Wm. C. A. Stevenson }

Porter-Hodgson Co., Publishers, 542-550 South Dearborn St., Chicago

FRED. A. HODGSON, President — FRED. D. PORTER, Secretary and Treasurer — GEO. A. FARGHER, V. Pres. and Adv. Mgr.

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Established 1885.

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THE NATIONAL BUILDER seeks the advertising of reliable houses only, and asks that prompt notice be given by any reader who has cause for complaint against an advertiser, that the matter may be investigated, and the advertisement discontinued should the advertiser be proved untrustworthy.

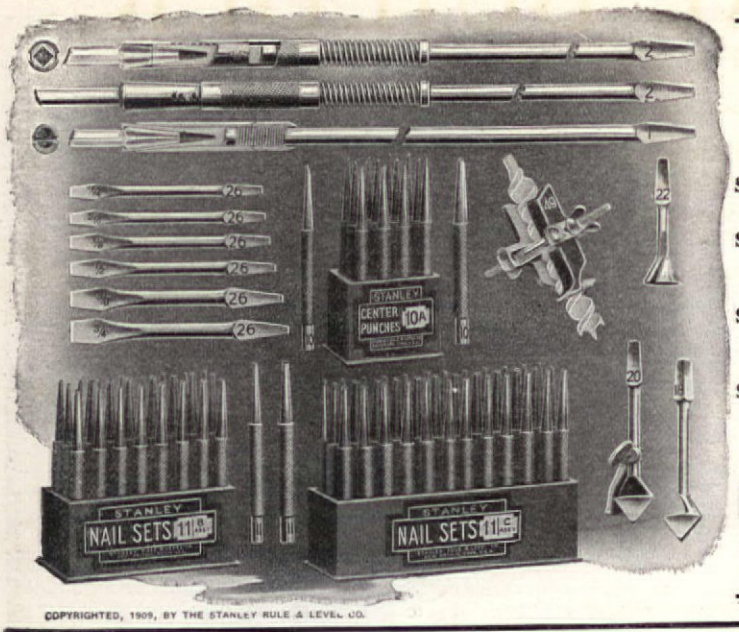
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Stanley Tools

STANLEY CENTER PUNCHES, NAIL SETS and SCREW DRIVER BITS are oil tempered and fully guaranteed.

STANLEY EXTENSION BIT HOLDERS enable the user to bore through walls, floors, etc., where an ordinary bit will not reach. Will follow up a 5-8 inch bit.

STANLEY ADJUSTABLE BIT GAUGE will enable one to bore any number of holes to a given depth. Can be attached to any size of bit up to one inch.

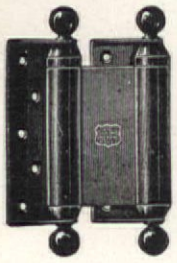
STANLEY COUNTERSINKS are suitable for every variety of wood screws. Send for catalogue.

STANDARD THE WORLD OVER

Stanley Rule & Level Co.
NEW BRITAIN, CONN. U.S.A.

EVERY TOOL GUARANTEED

Bommer Spring Hinges are Quality Goods



But cost no more than the inferior kinds

The Springs Never Go Lame

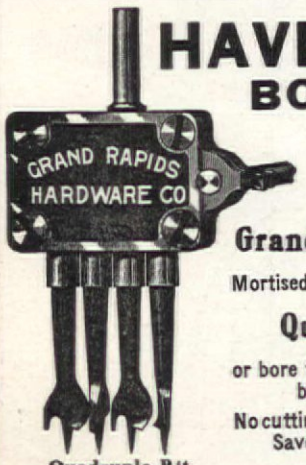
This Trade Mark on Every — THE BOMMER SPRING HINGE — Genuine Bommer Hinge



Reputations are made by consistently giving your customer the best spring hinges and avoiding imitations or substitutes

Bommer Spring Hinges are sold by all Hardware Dealers

HAVE YOU POWER BORING MACHINES?



Quadruple Bit
Price $5.00
Can not be used in a hand brace

IF SO,
No Sash Pulley Can be Classed with the

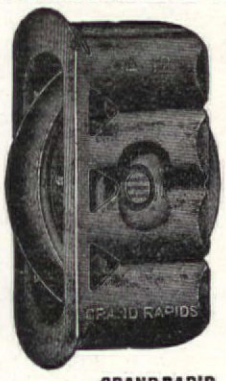
Grand Rapids No. 12

Mortised at one Punch with the

Quadruple Bit

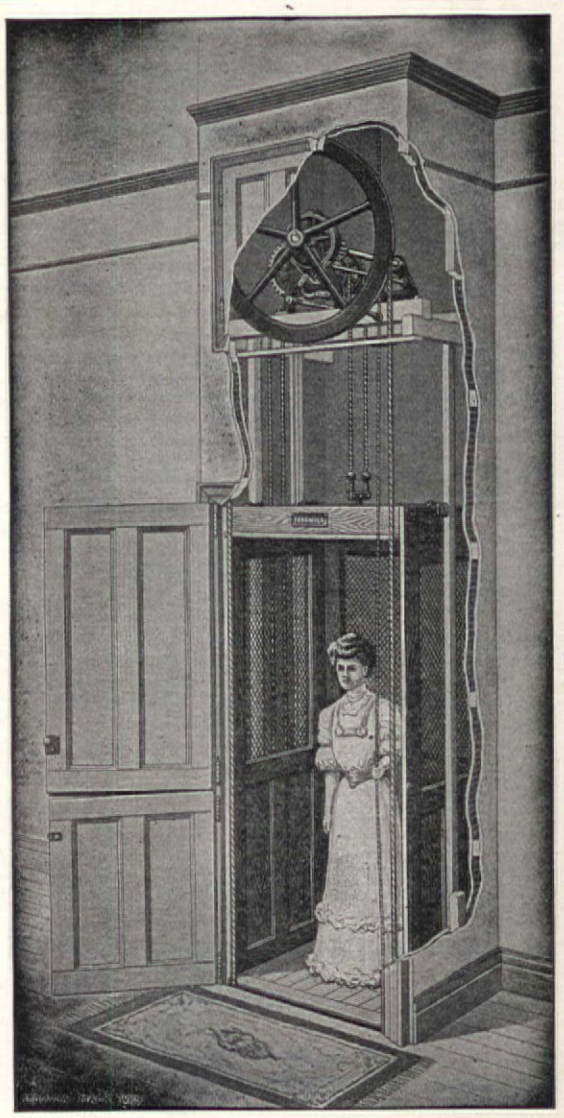
or bore four holes with a single bit and it's done.

No cutting, fitting nor trimming. Saves time and money



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Hand Power Elevators and Dumb Waiters

for all purposes

Cut shows the Improved Sedgwick Hand-Power Invalid Elevator Outfit.

Catalogue upon request

Sedgwick Machine Works

130 Liberty St. New York



TRUS-CON JOIST HANGERS

Made in all sizes and styles for use with brick or concrete block walls or with wooden or steel beams.

Avoid cutting away and weakening of timbers and walls—save labor, time and money.

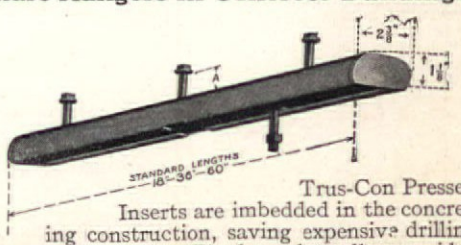
Trus-Con Joist Hangers are made from open hearth steel plates, and are proven by actual test to be the strongest on the market. Note the bulb-shaped reinforcement at upper angle.

We also furnish Post Caps, Post Bases, Wall Plates and Base Plates made in rolled steel, malleable iron, or cast iron.

Write for catalog and prices.

SHAFT HANGER SUPPORTS *for* CONCRETE BUILDINGS

Trus-Con Pressed Steel Inserts for Supporting Shaft Hangers in Concrete Buildings.



Trus-Con Pressed Steel Inserts are imbedded in the concrete during construction, saving expensive drilling after completion of the work. The long slots allow a wide variation in position. Special washers prevent bolts turning in the slots. Write for details and prices.

TRUSSED CONCRETE STEEL CO., 384 Trussed Concrete Bldg., DETROIT, MICH.

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Grand Trunk Railway System

Most Direct Route to the "Highlands of Ontario"

Orillia and Couchiching, Muskoka Lakes
Lake of Bays, Maganetawan River, Algonquin National Park
Temagami, Georgian Bay, Kawartha Lakes

Spend Your Summer Holidays at One of These Delightful Spots

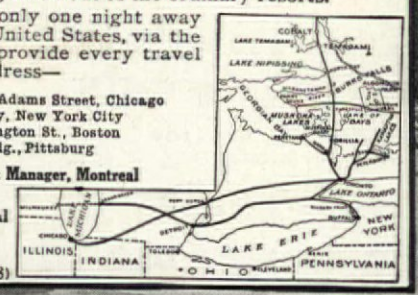


Finest summer playgrounds in America. Good hotel accommodations at moderate cost. The lover of outdoors will find here in abundance all things which make roughing it desirable. Select the locality that will afford you the greatest amount of enjoyment and send for **free** map folders, beautifully illustrated, describing these out of the ordinary resorts.

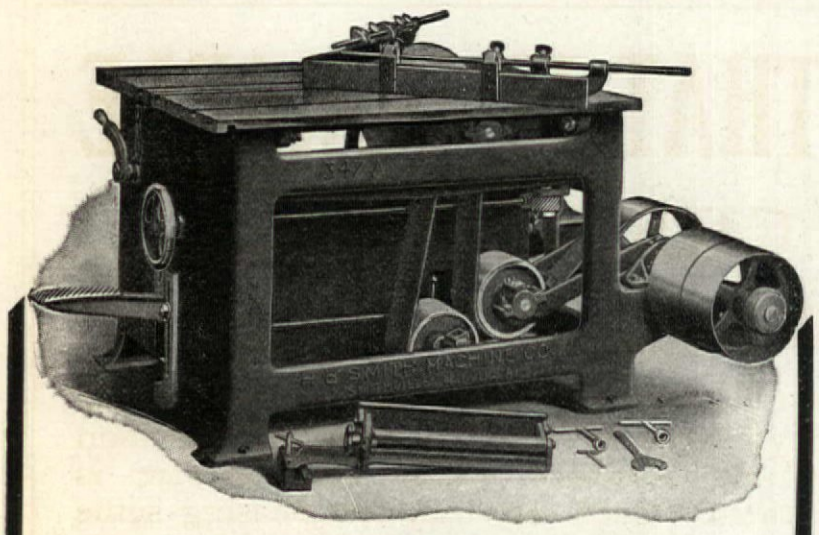
All this recreation paradise only one night away from the leading cities of the United States, via the Grand Trunk. Palatial trains provide every travel luxury to your destination. Address—

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(8)



No. 347. Combination Saw and Dado Machine.

Looking for a Modern Saw Bench?

The above cut represents our new Combination Saw and Dado Machine.

The **Frame** is quite substantial, with closed front.

The **Ways** adjust for depth of cut, and

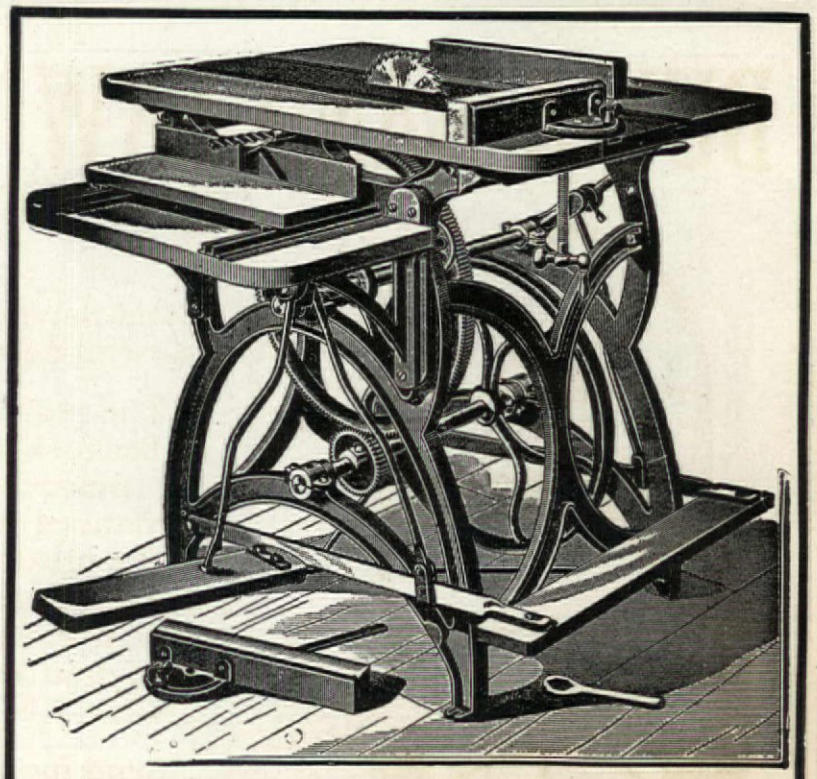
The **Carriage** moves on rollers having ball-bearings.

The **Saw Mandrel** runs in self-oiling boxes, and is brought into the work by a foot treadle, thus leaving both hands free to handle the work.

For further particulars concerning above and other machines, address

H. B. Smith Machine Co., Smithville, N. J., U.S.A.

New York Chicago Atlanta Shreveport



MARSTON'S Hand and Foot Power CIRCULAR SAW

Iron frame, 36 inches high. Center part of top is made of iron accurately planed with grooves on each side of saw gauges to slide with grooves on each side of saw for gauges to slide in. Steel shafts and best babbitt metal boxes. Gears are all machine cut from solid iron. Boring table and side treadle. Two 7-inch saws and two crank handles with each machine. Weight, complete, 350 pounds.

SEND FOR CATALOG

J. M. MARSTON & CO., 193 Ruggles Street BOSTON, - MASS.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.


"Victor" Scroll Saw

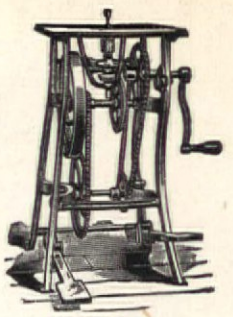

"Diamond" Mortiser

FOOT, HAND AND POWER

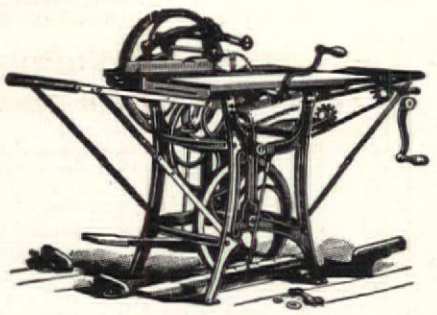
WOOD-WORKING MACHINERY

FOR CARPENTERS, BUILDERS, CABINET-MAKERS AND OTHER WOOD-WORKERS

Built for Hard Work, Accurate Work and Long Service


"Rex" Moulder

ONE MAN with one of these machines will do the work of four to six men using hand tools; will do it easier, will do it better.


"Union" Combination Self-Feed-Rip and Cross-Cut Saw

WE GUARANTEE each machine to be thoroughly practical and accurate. Machines sent on trial, and if not found entirely satisfactory, may be returned at our expense.

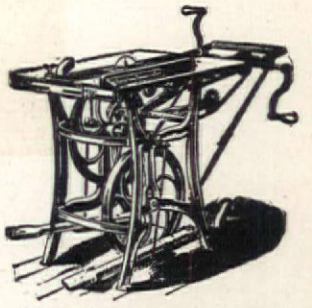

No. 8 "Union" Power Saw

Enterprising mechanics are quick to see the superior merits of our machines. It will pay you to investigate these advantages.

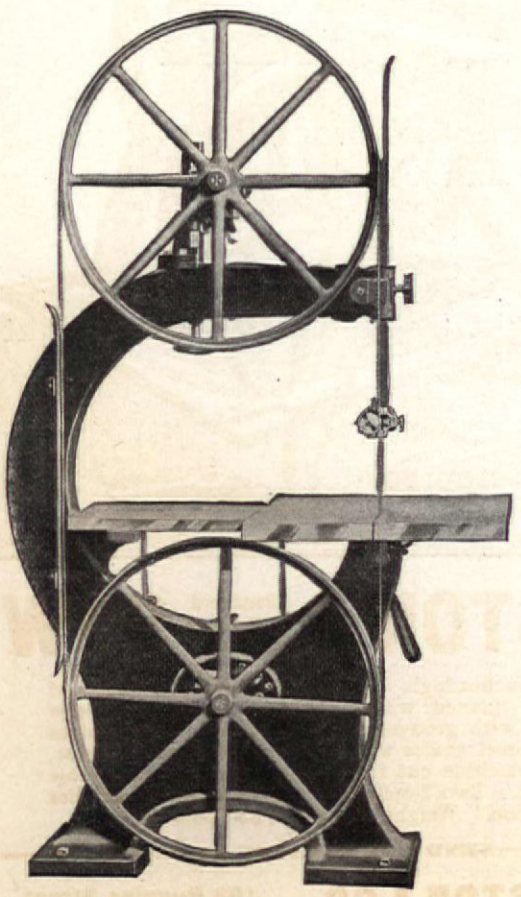
Send for Catalog "A"

The Seneca Falls Manufacturing Co.

629 Water Street, Seneca Falls, N. Y., U. S. A.


No. 6 "Union" Combination Saw

BUY A BAND SAW THAT IS DURABLE



CRESCENT

Band Saws satisfy those practical, experienced mechanics who need strong, substantial tools.

The reason CRESCENT Band Saws are so popular is because they have earned a well-deserved reputation for durability and accuracy where hard service is demanded of them. Each day they are pleasing some of the most exacting band-saw operators in every civilized country, and as you appreciate what it means to have a thoroughly dependable, well-built, practical band saw, you should certainly look into the merits of the CRESCENT line before you order.

Send for a catalog telling all about these splendid machines, and our line of Saw Tables, Jointers, Borers, Swing Saws, Planers, Planers and Matchers, Wood-Workers, Disk Grinders.

The Crescent Machine Co.

No. 10 Main Street

LEETONIA :: :: OHIO

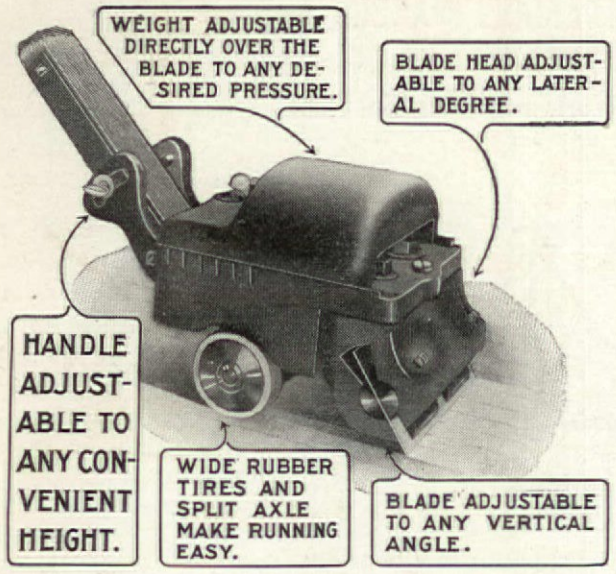
PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

YOU KNOW

from the picture that the

ADJUSTABLE

Is a Practical FLOOR SCRAPER



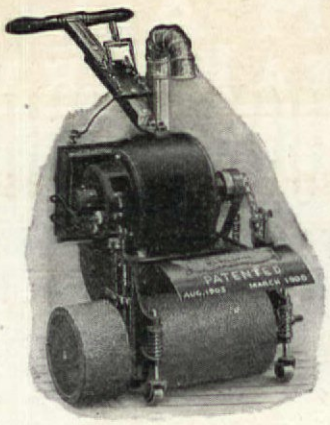
I will send you one **on approval** and let you give the machine a chance to speak for itself in your own hands.

If not more than pleased with its work, ship it back at my expense. If perfectly satisfied, remit **$40.00,** the price to everyone, payment in full.

I will make one profit the day the sale is made, but you will make a profit every day you use it.

H. P. DIDRICKSEN

941 Park Avenue SOUTH BEND, IND.



Made in three sizes: 8x18, 8x15, and 8x12 in. Roller Edge Roller easily adjusted to either side

Perfect Results are Easily Obtained by Using Schlueter Rapid Floor Surfacer

This machine is built on the only correct principle. It is guaranteed to be **The Best** machine with which to produce an even, smooth service on any kind of large or small wood floor, old or new, hard or soft, and in all buildings: Residences, Stores, Factories, Bowling Alleys, Roller Skating Rinks, Reception and Dance Halls, Etc.

The **Schlueter** will remove all joints or warped edges, and oil, wax, lime stains, or the "muck" from skate wheels, in a most satisfactory manner.

Earning Capacity, $20.00 to $35.00 per Day

Send for prices and Free Trial Proposition

M. L. SCHLUETER

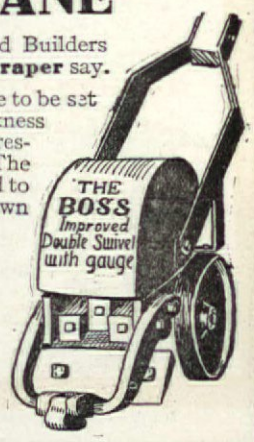
101 N. Canal St., CHICAGO, ILL.
1001 Flatiron Bldg. NEW YORK.

Acme Floor Surfacing, Laying & Finishing Co. Not Inc.

"IT'S A SCRAPER BUT IT WORKS LIKE A PLANE"

That is what the many satisfied Contractors and Builders who are using **The Boss Improved Floor Scraper** say.

THE BOSS has double swivel allowing the knife to be set in any position. Gauge can be set for any thickness of shaving and keeps knife from making depressions in floor. Gives knife double support. The pear-shaped wheel which is in the gauge is attached to the gauge in front so that when the scraper is let down to take shaving, it lets the knife down gradually and prevents the knife from making a deep cut. With this gauge and wheel attachment the knife will leave no mark. Impossible to do poor work. Adjustment simple—positive. Gauge can be removed instantly. Standing attachment cleans wheels and takes off the rosin when working hard pine. Prices very low. Write for descriptive circular "N"



GEORGE J. KEPPLINGER, - Dwight, Illinois

When You Buy a Floor Surfacing Machine

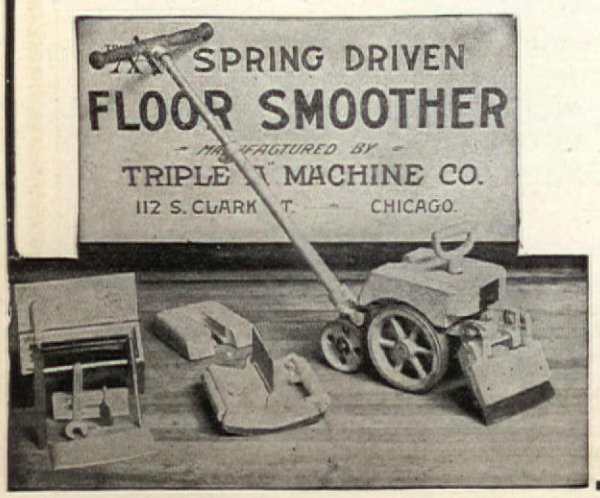
BUY A GOOD ONE—IT PAYS!

The Triple "A" Spring-Driven Floor Smoother combines the advantages of the hand machine and the power machine. No more expense than the former, yet has the capacity and ease of operation of the latter.

No wasted energy pulling a dead weight.

About half of all the Triple "A"s sold have been bought by owners of dead weight machines. What's the answer?

"Get the best first and save extra expense."



The Triple "A" to be appreciated needs only to be seen in operation.

For advertising purposes we will give a special discount on the first machine sold in each town.

SENT ON FREE TRIAL

WRITE FOR FULL INFORMATION

TRIPLE "A" MACHINE COMPANY

34 North Clark Street CHICAGO

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

TRY THEM ALL - KEEP THE BEST
TWILL BE A WEBER IF GIVEN A FAIR TEST

Weber Tools and Appliances
Stand for Themselves—



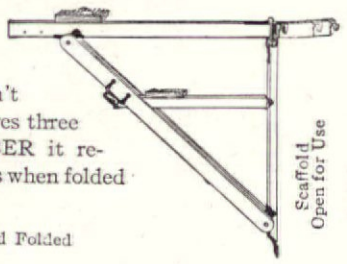
Try the **WEBER** Double Acting **Floor Scraper**

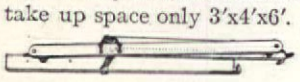
on the same floor with all others on the market. If it is not handier, more time and labor saving and more durable—if its work is not better all thru—return it at our expense.



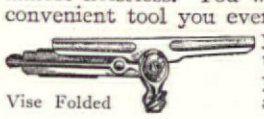
Cabinet Scraper
and sander—a tool which every cabinet maker, carpenter and painter should have. It is recognized as the most valuable article of its kind ever invented. Ask you dealer. If he does not handle it, I will ship direct or thru him.

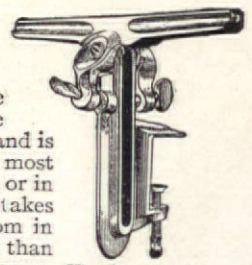
Double-Folding Scaffold Bracket
Is adjustable to any building. Can't swing. Where it ordinarily requires three rows of scaffolding, with the WEBER it requires only two; 12 of these brackets when folded take up space only 3'x4'x6'.




Scaffold Folded

Folding Saw-Filing Vise
Also ask your dealer to show you the WEBER Folding Saw-Filing Vise—the Saw Vise you want. Has a rigid grip and is almost noiseless. You will find it the most convenient tool you ever had on a job, or in your shop. It takes up no more room in your hand box than an ordinary hammer.


Vise Folded


Vise Open for Use

Wax Polishing Brush
and sander. Brush sits square and even and imparts a high gloss. Sand-papering block admits turning paper one-half around, greatly lengthening its life.

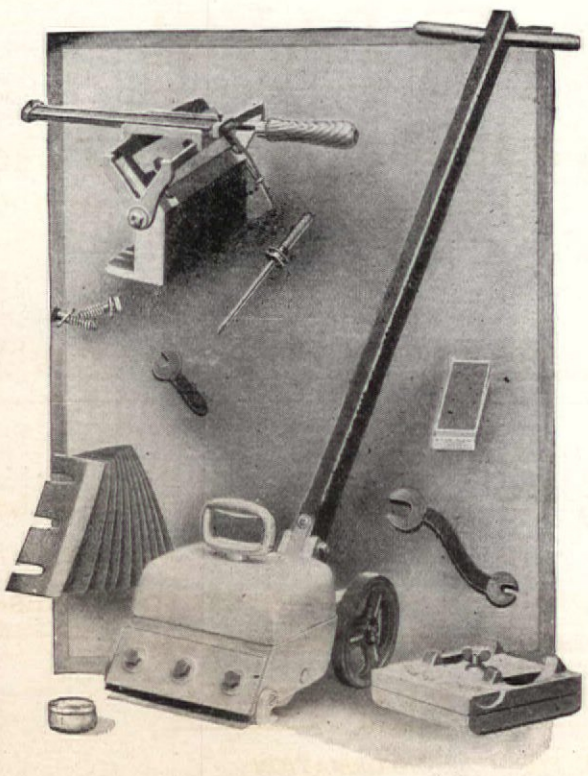


Write for Free Trial
I want you to try the Weber Double Acting Floor Scraper on my 5 to 10 days free trial offer.

JOHN F. WEBER, President

Weber Manufacturing Company
661 71st Ave., West Allis, Wis.

FLOOR SCRAPER SATISFACTION



That's what the Acme Floor Scraping Outfit assures. In fact it is guaranteed to do satisfactory work or no pay is asked for the outfit. My free trial offer relieves you of all responsibility. You take no chances, for if the machines do not meet with your approval after you have worked with them for one week, just ship them back to me at my expense. Read what contractors had to say in April.

Gladbrook, Ia., April 22, 1911.

Jos. Miotke, Milwaukee, Wis.
Dear Sir:—Your floor scraper was received a few weeks ago, and will say it is the best machine I ever saw. Please find enclosed draft for the outfit.

Very truly yours
Paul Cuthbertson

Sumter, S. C., April 17, 1911.

Jos. Miotke, Milwaukee, Wis.
Dear Sir:—I have used the Acme floor scraping outfit and am very much pleased with it. It is exactly what I want and you will, therefore, find check enclosed for the same. With best wishes I am

Yours very truly
W. F. Carr.

Logansport, Ind., April 11, 1911.

Jos. Miotke, Milwaukee, Wis.
Dear Sir:—Your floor scraping outfit arrived a short time ago and I have used the scraper on maple flooring and it does the work better and easier than any other machine I have ever used. The sharpening device certainly is a wonder. You can't help but get a good edge on a blade. I cheerfully enclose check in payment of the outfit.

Yours respectfully.
L. E. Wickersham.

If you want booklet and full details of my free trial offer, drop me a line now.

JOSEPH MIOTKE, 249 Lake Street, MILWAUKEE, WIS.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.



Antifriction Ball Tip Butts

(Patent Pending)

Strongest, Best and Cheapest Antifriction Butts Made

GUARANTEE OF QUALITY STAMPED ON EVERY BUTT

FURNISHED IN ALL STANDARD FINISHES

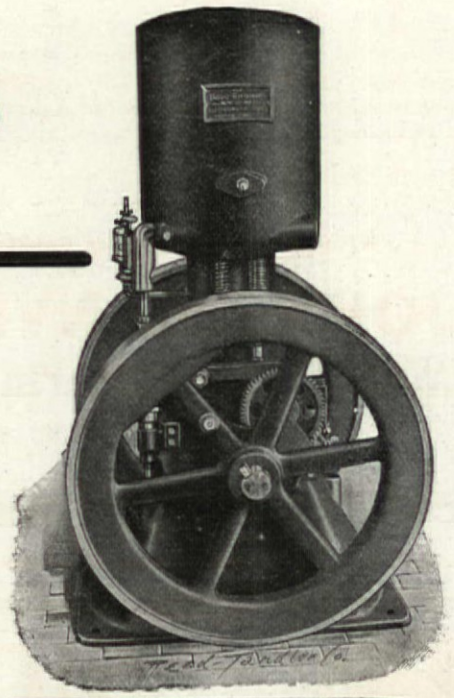
Makers of Strap and T Hinges, Barn Door Hangers and Track

McKINNEY MFG. COMPANY

Pittsburgh, Pa.

WRITE FOR NEW 1911 CATALOGUE

The NOVO Engine



The NOVO gasoline engine in four sizes from 1¼ to 6 H. P. is especially adapted for use on portable and stationary machinery of every kind. It is **very light in weight, absolutely self-contained,** gasoline being in the base and the water contained in tank around the cylinder, which is guaranteed not to burst from freezing. The **upright form** and **low height** for vertical engine, and **small size of base,** adapts it for use on any machine requiring a self-contained power.

We should be pleased to furnish manufacturers or users of portable machines of any kind with full information, weights, and sizes of our different engines.

We make **three sizes** of **gasoline hoists** for builders' use.

THE HILDRETH MFG. CO.

C. E. BEMENT, Secretary and Manager

150 Willow St. LANSING, MICHIGAN

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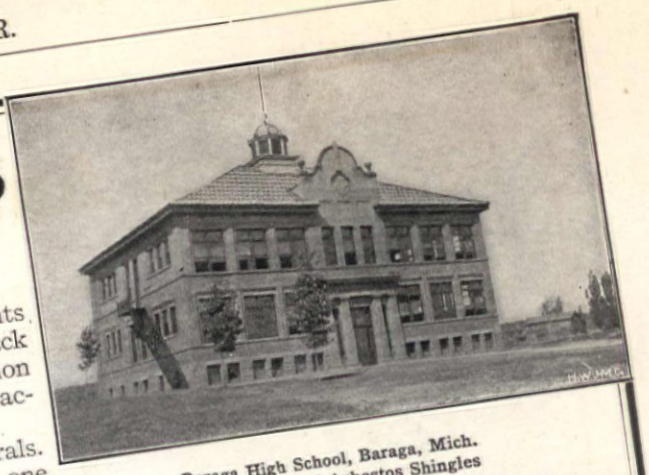


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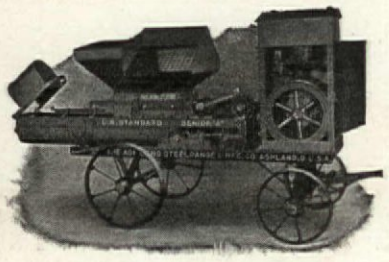
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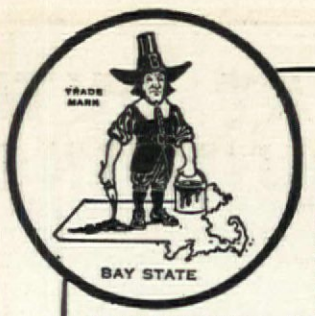
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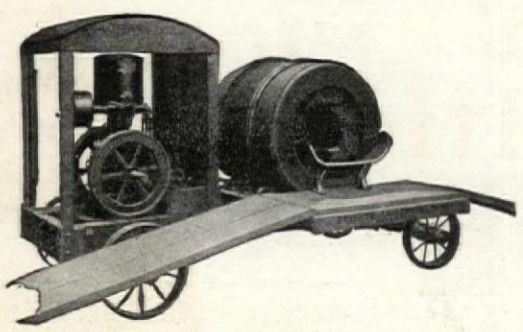
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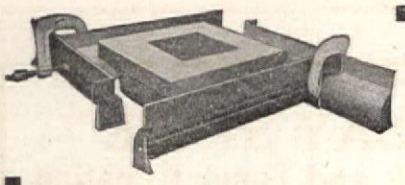
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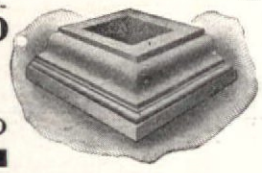
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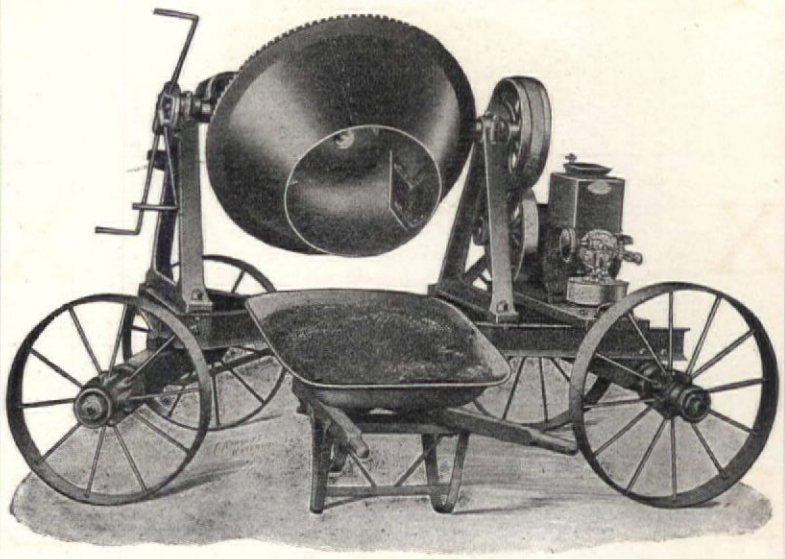
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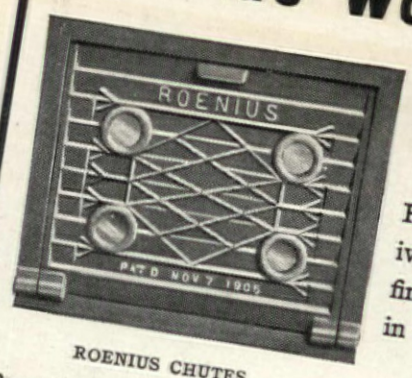
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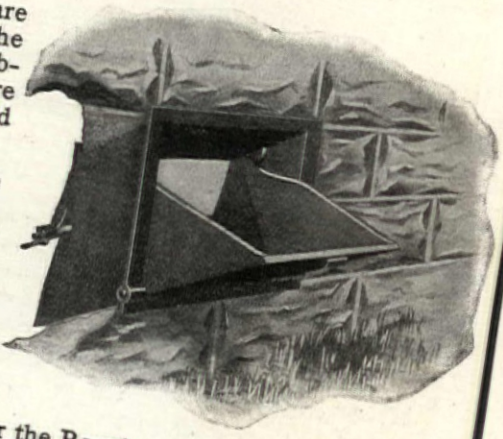
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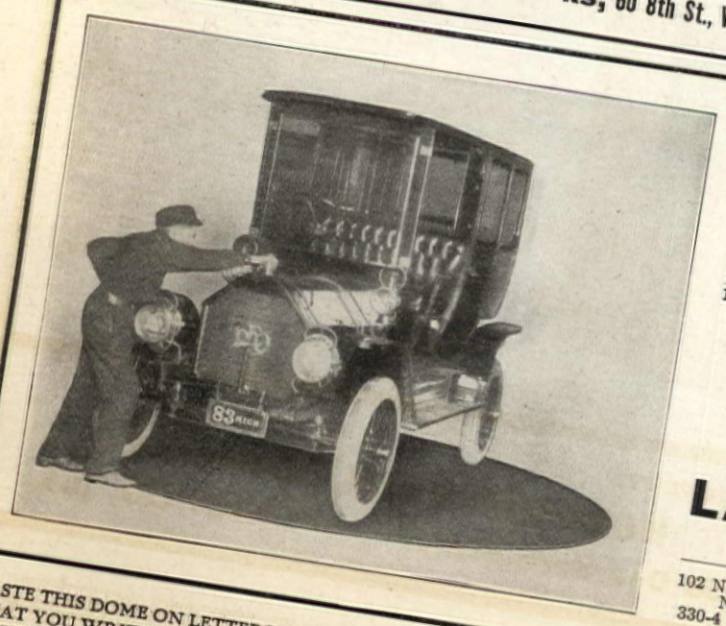
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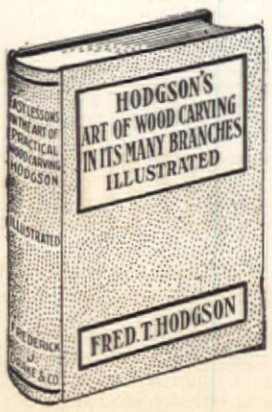
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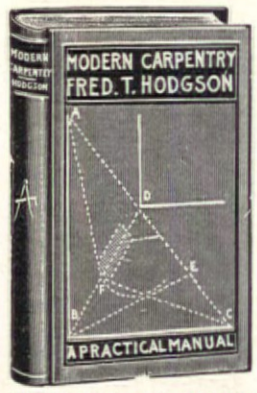
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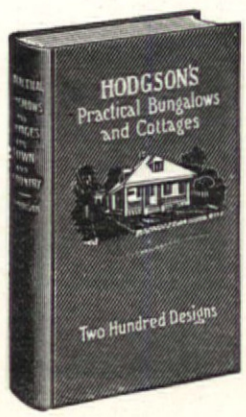
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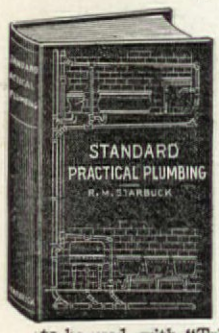
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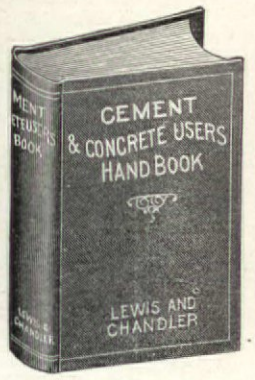
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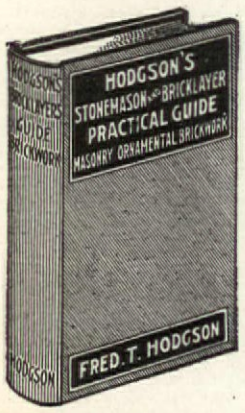
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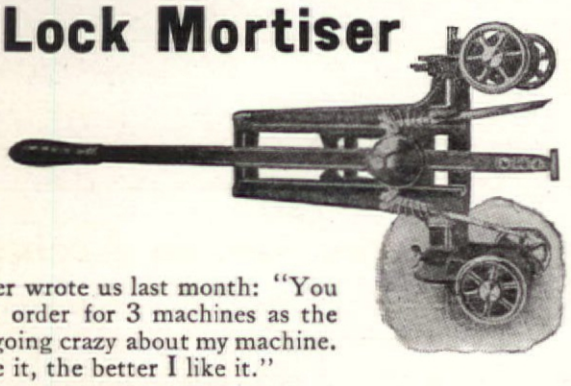
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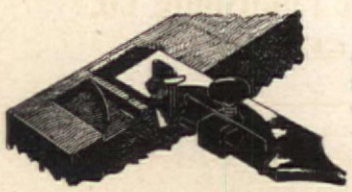
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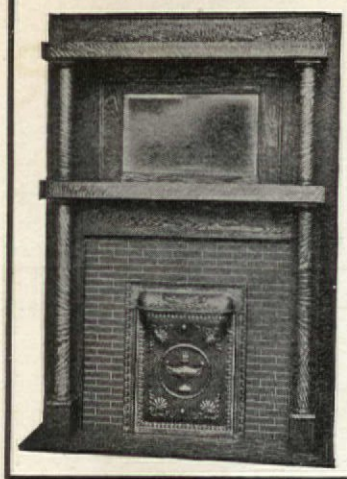
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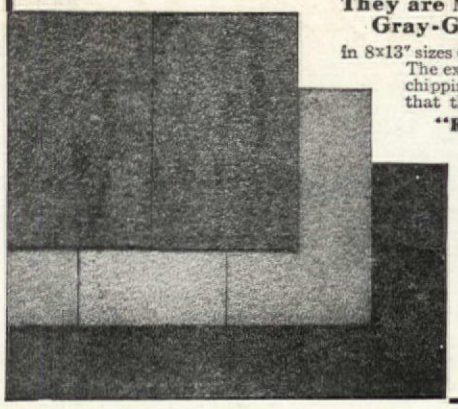
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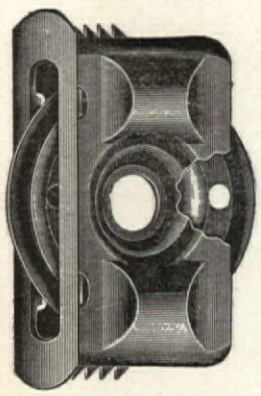
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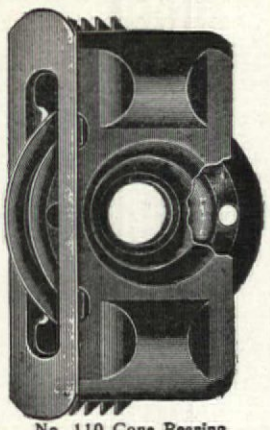


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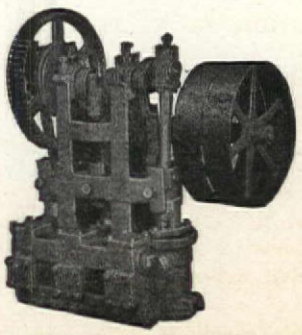
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Vol. 52 CHICAGO, JUNE 1911 No. 6



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For Floor Plans, Elevations and Details, See Supplement Sheet of this number. Estimated Cost, $10,498.78

THE WALSH APARTMENT HOUSE

Our supplement sheet for June shows a two-story apartment house recently built in Chicago for Mr. James C. Walsh from the plans of Perry & Thomas, architects.

Pressed brick with Bedford stone trim for the exterior form a pleasing combination, with an air of solidity due to the absence of projecting metal or wood cornices.

Access to the second floor apartment is provided by an open stairway in the public hall, from which opens the door to first floor apartment. Each compartment has a porch entirely separate from the entrance porch.

Each apartment is unusually complete, the living rooms having brick mantels and built in bookcases, the dining rooms having sideboards, and each of the four bedrooms in each apartment having a large closet, besides the hall coat closet, linen closet and medicine cabinet in the bathroom.

Being built on a corner lot allows excellent light and ventilation for every room. The building is finished in hardwood throughout and heated by hot water. Laundry facilities are provided in the basement, besides which there is ample storage room.

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Total stone	$270.00

IRON WORK.

2 7 in. x 19 ft., 15 lb. I beams. 1 7 in. x 27 ft. 9 in., 15 lb. I beams. 6 7 in. x 7 ft., 15 lb. I beams. 2 7 in. x 19 ft., 15 lb. I beams. 2 7 in. x 12 ft., 15 lb. I beams.	$76.50

ROOFING.

21 squares gravel roofing, $4.00	$ 84.00
3½ squares asbestos shingles, $14.00	49.00
Total	$133.00

LUMBER BILL.

	Ft.
60 2x10x16 ft. first floor joists	1,620
60 2x10x12 ft. first floor joists	1,200
60 2x12x16 ft. second floor joists	1,920
60 2x12x12 ft. second floor joists	1,440
40 2x10x10 ft. porch joists	620
20 2x10x16 ft. porch joists	1,080
40 2x 8x10 ft. porch ceiling	540
20 2x 8x16 ft. porch ceiling	420
60 2x 6x16 ft. main ceiling	960
60 2x 6x12 ft. main ceiling	720
60 2x10x16 ft. roof joists	1,620
60 2x10x12 ft. roof joists	1,200
120 1x 6x12 ft. braces	720
250 2x 4x18 ft. partitions	3,000
20 2x 8x18 ft. partitions	480
60 2x 4x16 ft. plates	660
150 1x 2x18 ft. furring	450
40 1x 4x16 ft. bridging	214
50 1x 6x12 ft. braces	300
Total ft. framing lumber	19,164

19,164 ft. framing lumber at $27.00	$ 517.42
6,600 ft. 1x8x16 ft., No. 2 sheathing; rough floors and roof, $27.00	178.20
4,300 ft. ⅞x2¼ face oak flg., $80.00	364.00
530 ft. ⅞x2¼ face maple flg., $60.00	31.80
400 ft. 1x4x8 ft. fir flg., $45.00	18.00
600 ft. 1x4x10 ft. fir flg., $45.00	27.00
400 ft. ⅝x4x8 ft. Y. P. ceiling, $30.00	12.00
600 ft. ⅝x4x10 ft. Y. P. ceiling, $30.00	18.00
Total	$1,166.42

MILL WORK.

1 basement dr. frame, 2 ft. 8 in. x 6 ft. 8 in., 1¾	$ 2.50
1 basement dr. frame, 2 ft. 4 in. x 6 ft. 8 in.	2.50
2 basement dr. frames, 2 ft. 6 in. x 6 ft. 8 in., $2.50	5.00
1 basement dr. frame, 3 ft. 6 in. x 6 ft. 8 in.	3.00
3 basement wd. frames, 28x22, divided, $2.00	6.00
6 basement wd. frames, 28x24, divided, $2.00	12.00
1 basement wd. frame, 16x24, divided	2.00
1 basement door, 2 ft. 8 in. x 6 ft. 8 in. x 1¾ in.	4.00
1 basement door, 2 ft. 4 in. x 6 ft. 8 in. x 1⅜ in.	2.50
2 basement doors, 2 ft. 6 in. x 6 ft. 8 in. x 1⅜ in., $2.50	5.00
1 basement door, 3 ft. 6 in. x 6 ft. 8 in. x 1⅜ in.	4.00
3 windows, 28x22, divided, $2.00	6.00
6 windows, 28x24, divided, $2.00	12.00
1 window, 16x24, divided	1.80
1 door frame, 3 ft. 4 in. x 7 ft. 0 in.	4.00
1 vestibule frame, 3 ft. 0 in. x 7 ft. 0 in.	3.50
2 rear dr. and window frames, 2 ft. 8 in. x 7 ft. 0 in., Tr. 30x10; window, 34x24, $6.00	12.00
1 door frame, 2 ft. 4 in. x 7 ft. 0 in.	3.50

First Story Inside Doors.

6 door frames, 2 ft. 8 in. x 7 ft. 0 in., $1.00	6.00
1 door frame, 2 ft. 10 in. x 7 ft. 0 in.	1.00
3 door frames, 2 ft. 4 in. x 7 ft. 0 in., $1.00	3.00
1 door frame, 2 ft. 6 in. x 6 ft. 4 in.	1.00
4 door frames, 2 ft. 0 in. x 7 ft. 0 in., $1.00	4.00

Second Story Inside Doors.

1 door frame, 2 ft. 10 in. x 7 ft. 0 in.	1.00
6 door frames, 2 ft. 8 in. x 7 ft. 0 in., $1.00	6.00
2 door frames, 2 ft. 4 in. x 7 ft. 0 in., $1.00	2.00
5 door frames, 2 ft. 0 in. x 7 ft. 0 in., $1.00	5.00
1 front dr., 3 ft. 4 in. x 7 ft. 0 in. x 2¼ in.	18.00
1 vestibule door, 3 ft. 0 in. x 7 ft. 0 in. x 2¼ in.	16.00
2 doors, 2 ft. 8 in. x 7 ft. 0 in. x 1¾ in., $8.00	16.00
1 door, 2 ft. 4 in. x 7 ft. 0 in. x 1¾ in.	7.00
2 doors, 2 ft. 10 in. x 7 ft. 0 in. x 1¾ in., $8.00	16.00
12 doors, 2 ft. 8 in. x 7 ft. 0 in. x 1¾ in., $8.00	96.00
5 doors, 2 ft. 4 in. x 7 ft. 0 in. x 1¾ in., $7.00	35.00
9 doors, 2 ft. 0 in. x 7 ft. 0 in. x 1¾ in., $7.00	63.00
1 door, 2 ft. 6 in. x 6 ft. 8 in. x 1⅜ in.	6.00
1 mullion win. frame, 5 win., 20 in. x 72 in., divided	15.00
3 window frames, 29x32x26, divided, $3.00	9.00
2 window frames, 22x32x26, $3.00	6.00
6 window frames, 36x32x26, $3.00	18.00
2 mullion frames, 4 windows, 24x32x26, $10.00	20.00
2 mullion frames, 3 windows, 14x22x16, $7.50	15.00
1 sash frame, 30x16	2.00
2 sash frames, 28x36, $2.50	5.00
2 window frames, 12x20x18, $2.50	5.00
4 window frames, 30x32x26, $3.00	12.00
2 window frames, 32x20x18, $2.75	5.50
2 window frames, 16x20x18, $2.50	5.00
2 window frames, 28x20x18, $2.50	5.00
5 windows, 20 in. x 72 in., divided, $5.00	25.00
3 windows, 29x32x26, divided, $3.00	9.00
2 windows, 22x32x26, divided, $2.75	5.50
4 windows, 36x32x26, divided, $3.50	14.00
2 windows, 36x32x26, 2 lt., $3.00	6.00
8 windows, 24x32x26, divided, $2.50	20.00
6 windows, 14x22x16, divided, $2.00	12.00
1 sash, 30x16, divided	2.00
2 sash, 28x36, divided	2.50
2 windows, 12x20x18, 2 lt., $2.00	4.00
4 windows, 30x32x26, 2 lt., $2.50	10.00
2 windows, 32x20x18, 2 lt., $2.25	4.50
2 windows, 16x20x18, 2 lt., $2.00	4.00
2 windows, 28x20x18, 2 lt., $2.25	4.50
1,120 ft. base, 4c	44.80
650 ft. picture mold., 1½c	9.75
350 ft. beam ceiling, 20c	70.00
Bookcases	50.00
Mantel	45.00
Sideboard	50.00
Main stairs	75.00
Linen closet	10.00
China closet	16.00
1,120 ft. base mold., 1c	11.20
1,120 ft. floor mold., 1c	11.20
140 plinth blocks, 8c	11.20
2,200 ft. casing, 3c	66.00
500 ft. head casing, 3c	15.00
500 ft. cap mold., 2c	10.00
500 ft. fillet mold., 1c	5.00
720 ft. window stop, 1c	7.20
620 ft. door stop, 1½c	9.30
200 ft. window stool, 2c	4.00
200 ft. apron, 2c	4.00
150 ft. chair rail, 2c	3.00
3 6x6x20 ft. posts, rear porch, $3.00	9.00
2 6x6x12 ft. posts, rear porch, $1.50	3.00
84 ft. bottom porch rail, 5c	4.20
84 ft. top porch rail, 5c	4.20
600 ft. baluster, 1¾x1¾	12.00
Total mill work	$1,198.85

CARPENTER LABOR.

19,164 ft. framing lumber at $10.00	$191.64
6,600 ft. sheathing, $8.00	52.80
4,830 ft. flooring, $20.00	96.60
4,500 ft. smoothing floors, $15.00	67.50
1,000 ft. porch floors, $15.00	15.00
1,000 ft. ceiling, $15.00	15.00
Setting window frames	12.00
Setting door frames	10.50

	Finishing 10 cellar window frames, $1.50	15.00
	Finishing 5 cellar doors, $2.00	10.00
	Finishing store rooms, etc., in basement	12.00
	Cellar stairs, inside	10.00
	Cellar stairs, outside	8.00
	Front door	5.00
	Vestibule door	4.50
2	rear outside doors and window combined, $6.00	12.00
1	outside door, second story	3.50
4	cased openings, $3.00	12.00
	Finishing 45 windows, $2.00	90.00
	Finishing 34 doors, $3.00	102.00
1,120	ft. base, 5c	56.00
650	ft. picture mold., 1½c	9.75
350	ft. beam ceiling, 18c	63.00
	Bookcases	20.00
	Sideboard	15.00
	Linen closet	5.00
	China closets	20.00
	Main stairs	35.00
	Rear porch stairs	20.00
	Total carpenter labor	$988.79

RECAPITULATION.

Excavating and masonry	$ 3,266.08
Stone	270.00
Structural iron	76.50
Roofing	133.00
Lumber bill	1,166.42
Mill work	1,198.85
Carpenter labor	983.79
Hardware and nails	120.00
Tin work	115.00
Plastering 1,460 yds., 27c	394.20
Tile floors	15.00
Plumbing	600.00
Electric wiring	110.00
Painting	350.00
Heating	1,200.00
Incidentals, 5%	499.94
Total estimate	$10,498.78

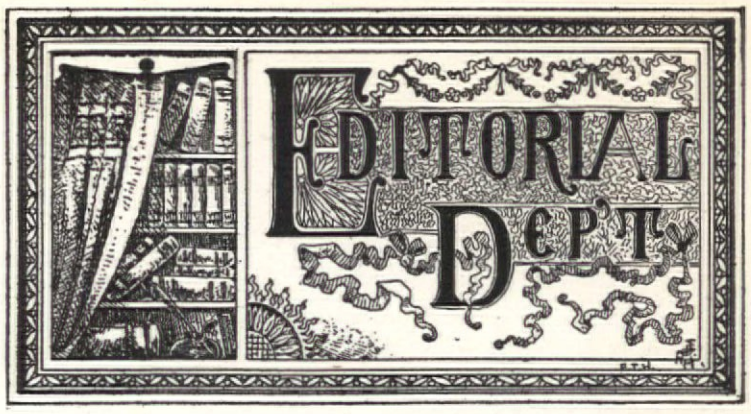
Estimated cubic feet of building from bottom of cellar to roof, not figuring in rear porch, 60,588, which makes the cost of this class of building rate about 17c per cubic foot.

A CANON OF ETHICS FOR ARCHITECTS

The following canon of ethics has been adopted by the American Institute of Architects as a general guide to members, and will be recognized as enumerating some of the elementary duties of an architect towards fellow professional men:

It is unprofessional for an architect,

1. To engage, directly or indirectly, in any of the building trades.
2. To guarantee an estimate or contract by bond or otherwise.
3. To accept any commission or substantial service from a contractor or from any interested party other than the owner.
4. To advertise.
5. To take part in any competition the terms of which are not in harmony with the principles approved by the institute.
6. To attempt in any way, except as a duly authorized competitor, to secure work for which a competition is in progress.
7. To attempt to influence, either directly or indirectly, the award of a competition in which he is a competitor.
8. To accept the commission to do the work for which a competition has been instituted if he has acted in an advisory capacity either in drawing programme or making award.
9. To injure falsely or maliciously the professional reputation, prospects, or business of a fellow architect.
10. To undertake a commission while the just claim of another architect who has previously undertaken it remains unsatisfied, or until such claim has been referred to arbitration or issue has been joined at law.
11. To attempt to supplant a fellow architect after definite steps have been taken toward his employment.
12. To compete knowingly with a fellow architect for employment on the basis of professional charges.



To provide for the future is the duty of every man who has a family, or who expects to have one.

* * *

The recent movement being made in England to have every man who works for a living, protected by an old age pension, is a step in the right direction.

* * *

The British Government is also about to enact such laws that may be necessary to ensure a regular weekly or monthly payment in a case of sickness, accident or permanent injury. The money for this purpose is to be provided by a fund, a portion of which is to be raised by each workman contributing about one cent a day, from his wages, which is retained by the employer, who hands this, with a like amount to the government, which also adds to it a like sum, or about one-third of the whole amount collected.

* * *

Proper machinery is provided by the government for the collection and disbursement of these monies, and the whole is placed under the control of the National authorities, a step which will insure the nearly perfect working out of the whole scheme. This law, in connection with the old age pension enactments, will go a long way towards lessening abject poverty in the old land, if it does not encourage a tendency towards idleness and dependence. This policy is a step in the direction of socialism, a condition towards which the world seems to be rapidly drifting.

* * *

The following figures showing the working of the German workmen's insurance law in 1909 are of interest to American workers: Of a total population of 63,879,000 people, 9,938,478 males and 3,456,812 females were insured against the consequences of illness. They were insured in 23,449 insurance offices in all parts of the empire. Against accidents were insured 14,854,000 males and 8,913,000 females. Against complete invalidity, or inability to work, were insured 10,707,100 males and 4,737,200 females. There were 5,540,825 cases of illness dealt with, 1,021,168 cases of accident and 115,264 fresh pensions for invalidity in addition to the existing 983,354 pensions. Old age pensions numbered in all 130,643. The income from insurance was 891,598,800 marks (four marks equal roughly $1), of which 413,497,700 marks were contributed by the employers and 342,076,300 by the workmen. The imperial contribution was 51,500,700 marks. The total expenditure was 598,924,200 marks.

* * *

John Passmore Edwards, who died at the age of 87 a few weeks ago, was one of the best known of English philanthropists. He made a great fortune, but he has probably died a poor man, most of his wealth having been devoted to the establishment and endowment of libraries, convalescent homes and other charitable institutions. The son of a working carpenter, he made his way to wealth and position by sheer industry and pluck. No sooner was he on the high road to success than a long illness took him away from his publishing business, with the result that he was forced into bankruptcy. On his return to business he denied himself everything until he could call his creditors together and pay them all twenty shillings in the pound.

In 1876 he bought the Echo, started the first one cent newspaper in London, and rigorously excluded all mention or reference to betting and horse racing. In spite of that the paper was soon a success and made him a fortune. At one time he sold the controlling interest in the paper to the Storey-Carnegie combination, which aimed at establishing a chain of Echos covering a good part of the United Kingdom. In less than three years he bought the Echo back at an enhanced price, and the Storey-Carnegie com-

bination was at an end. He was the mainspring in the Building News Company, and succeeded in making that journal one of the leading architectural papers of the world. He was the first to introduce the art of lithography in architectural journalism.

* * *

Gold bricks, real ones, may be the means of restoring the ancient fame of Golconda, near Hyderabad, in southern India, once known all the world over for its gold mines, but now a decayed city. The natural pits from which many centuries ago the precious metal was extracted have in course of time filled up with water. A contractor recently obtained permission to make bricks near the place and ten kilns were erected. The first finished bricks aroused curiosity by their yellowish tint, and analysis proved that they contained gold dust. On the basis of the yield of the sample bricks, the ten kilns will aggregate in weight about 12,857 pounds of gold, worth about $2,500,000. The site of the find belongs to the Nizam, or native ruler, whose affairs are administered by a British secretary, who has worked hard for nine years to produce a surplus in the Nizam's last annual budget of $15,000,000. It looks insignificant now compared with the result of nine days brickmaking.

* * *

Many eulogies have been written about the Taj Mahal at Agra, but perhaps the best is that recently given by Sir Frederick Treves. "Everyone," he says, "who visits Argamand Banu's tomb for the first time approaches it with curiosity, tinged probably by a faint disposition to be hostile. So much has been written about this wonderful building, so much rhapsody has been lavished upon it, that there is some suspicion of overpraise. The claim that it is the most beautiful building in the world is a claim that many at once resent. Its outlines are familiar enough from pictures and models, and it may be that they hardly warrant unrestricted ecstasy. The visitor proposes to himself to put sentiment aside and review the building critically . . . . to submit it to a common-sense inspection, for he is inclined to believe the Taj Mahal to be a much overrated monument. With the first sight of it there comes only a sense of indefinable pleasure; it is no mere feeling of admiration, still less of amazement. No mere delight in a splendid building, because it does not impress one as a building. There is a sudden vision, and with it a sudden sense of ineffable satisfaction, as if in the place of a marble dome the garden had been filled with divine music. All intended criticism is forgotten; there is nothing that appeals to the judgment or that suggests the weighing of opinions. There is merely a something that touches the nest sense of what is tender, beautiful, and lovable—a white cloud, luminous, intangible, translucent! The secret of the beauty of the Taj Mahal lies in the great arched recesses or vaulted alcoves which burrow deep into the body of the building. These are throbbing with sensitive shadows, and they give the impression that the onlooker can see into the very heart of this gentle palace as one would gaze into the heart of a yellow rose, where leaf by leaf the tints become deeper, warmer, and more living. There is ever a sense of something half hidden and half revealed, of a tenderness which has deeper depths. It is this abiding suggestion which makes the peculiar glory of the Taj a glory which is beyond the reach of any picture or any model. To many the Taj will be the most beautiful building in the world, while there must be few who would not acknowledge that it is the most lovable monument that has ever been erected."

CONTRACTING

By WARFIELD WEBB

THERE is more real economy in having efficient office help than in trying to get along with men whose ability is moderately good. A contractor who is conscious of this fact is the man who makes progress that is helpful. Sometimes we find a builder who is desirous of making as much profit for himself as is possible on every contract that he takes, and one means to attain this end is the employment of inferior workmen. He labors under the impression that with his own assistance he can not only show them much that will be helpful, but that he can do a great deal himself, and in this way keep the cost down.

For many reasons this is a most foolish notion. It might prove helpful sometimes in the case of a very ordinary piece of work, but even then the errors made, time lost, and other annoyances really foot up more than the additional profit would be by employing the best help. There are some contractors who are so narrow in their views on this important question that they are short-sighted enough to feel they are actually making a nice profit when they are losing money.

There is also the question of cheap construction work. Of inferior building. Some builders, particularly those who construct buildings to sell, have the habit of using only inferior materials, and the most inferior labor. In order to hide the defects that are natural in such cases, they hide them with paint and paper. We once heard a remark made about a party who had this method of constructing his houses. It was to the effect that his buildings could not be depended upon, from the simple fact that they were very cheaply constructed, and the defects covered with paint and wall paper. While it is true that he sold a fair number of them, the reputation that was spreading about him and his work was sure to sooner or later ruin his business and his reputation as well.

There is another class of house constructors who work upon lines that are slightly different from the above, but which are in no respects more honorable. They use scrap lumber, cheap brick and other materials that are worse than second hand, and then offer them as first-class houses, while some of the defects are actually in evidence. Many times the buyers are poor people who have only a small cash payment to make and the rest is purchased on time payments, with large interest. The contractor gloats over the deal he has made, and if the purchaser is not satisfied with the house he tells him to get out, and shows him his contract, which is so worded that the purchaser has no redress. If he moves out the contractor is just that much ahead. He sells it to another at the original price, sometimes for cash or on the same terms. In any event he is the gainer.

Instances of this kind are far more common than many would like to believe possible. What is the reputation of the builder of this class of work worth? He does not care, and no one else should. But there is the danger of distrust that is shared by many other contractors who are honest. It is a grave error to use inferior materials, or to employ inferior help. The economy in this way is not only false, but it is a mill stone to drag to ruin the unwise contractor.

Unless you are able to oversee the work of construction yourself the greater portion of the time, it would be a wise thing to employ a foreman that is capable of doing so, and upon whom you can depend. In doing this you will have to pay a good wage. Men of ability are not to be had for the asking, and the fact that they are always in demand is a further evidence of their value in a special line. With a competent foreman on the job, and with men under him that are capable, there is every reason to feel that they will do their work in a way that will be valuable to you.

In figuring on any contract it is far safer to allow enough margin for profit to make sure of your losses from unseen and undreamed causes. If you are so anxious to secure a contract that you will take it at a loss, then you had better give up contracting and go to work by the day. In the end you will find that you have gained, both in money, wisdom, and saved yourself much worry. How often, in order to beat a competitor, or to keep a force of men at work, or for some other reason equally as unwise, will not a contractor take a job at a figure that will make it almost impossible to obtain a profit.

Ignorance of the conditions governing a contract is sometimes responsible for this; then on other occasions, it is ignorance on the part of the contractor himself as to the duties demanded of him. In either event it is well to leave it to some one else, and not take a chance that has so much of the gamble in it. It is these little points that are at times most valuable for the contractor to bear in mind. The wise contractor will see ahead of him, and not simlpy live from day to day, taking every possible opportunity that savors of chance, in order to seek and make an imaginary profit for himself.

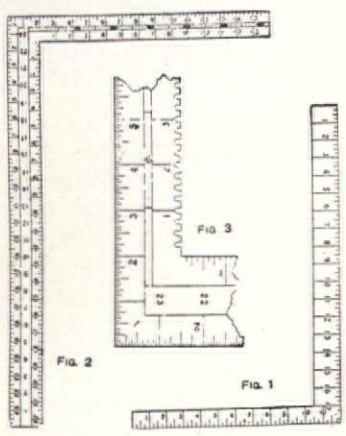
THE USE OF THE STEEL SQUARE

By J. H. B.

THE following is taken from The Building World, and gives some idea of the manner in which the Englishman at home makes use of the steel square for some purposes: Roofing by means of the steel square is doubtless now well known to many people—at least, by hearsay. The purpose of these articles is to show the methods of using the square to the best advantage. In the course of them more complete information will be given than any hitherto published, and this will be presented in a new and totally different manner. To attain this end more satisfactorily, the exact methods to be used, by which the various lengths, bevels, etc., are obtained, will be shown with the aid of photographs of the actual roofs dealt with. These will give more exact detailed assistance than is possible when drawings only are used.

Although the steel square (which emanated from America), has been in use for many years, there are still a great many who have never seen one, and who, when the tool is mentioned, confuse it with the old fashioned iron square, used for rough work, especially in the south of England, from time immemorial. Now there can be no doubt that the old fashioned carpenter's friend is really the forerunner of the modern tool, the latter being evolved from the former by our enterprising cousins across the water, the result amply repaying the troubles taken in doing so.

For the information of those who have not seen an up-to-date steel square, and also for those who are not familiar with the old style, a sketch of each is given, Fig. 1 showing the old and Fig. 2 the new. The former, as shown, consists of one arm, 1½ ft. long, usually 1½ in. wide, from one end of which branches off at right angles the shorter arm, 12 in. only in length by 1 in. wide. The



square thus formed is divided into inches, these being further subdivided into eights on the outer edge only (in the the drawing the inches are divided into quarters only); thus it is not convenient for measuring from the inside, the necessity of subtracting the width of the arms from the distance figured on the square being productive of mistakes. To these faults may be added that, owing to the comparative weakness at the angle, and the rough usage to which the tool is often put, it is rare indeed that one of these squares can be found which is a square in reality. The width of the two arms is also, as a rule, only approximately correct; the edges are not made straight, and can be depended upon only for the roughest of work, and will not by any means do for use in roofing by the methods to be dealt with here.

Coming to the improved square, as shown in Fig. 2, the longer arm is 2 ft. and the shorter 1 ft. 4 in. long, the former being 2 in. wide and the latter 1½ in. only. Each is divided into inches, these being again subdivided into sixteenths and numbered so as to read correctly from either end.

Each arm of the square is also divided, so that measurements can be read from the angle, thus adding considerably to the convenience when in use. In some makes of these squares, both arms are divided on the inside the same as the outside; but in the one used for the purpose of these articles, the longer arm is divided up into eighths only on the inside. The short arm is divided into inches, as shown in Fig. 2, and figured from the inside angle, the whole length being cut away at intervals of ¼ in., or crenulated, as in Fig. 3. By means of these crenulations it is possible to dispense with a gauge in setting out mortices and tenons; the long arm sliding along the wood, and a pencil being placed in the proper position, marks the tenon or mortice as truly, or more so, than a gauge. This may perhaps not be strictly roofing, but it comes under the same head, many roofs requiring a certain amount of framing in their construction.

On the opposite side to that shown in Figs. 2 and 3, the whole of the outer edge of the square is divided into inches, these being subdivided into twelfths, a very convenient division, as will be shown later on. The longer arm on this side of the square is

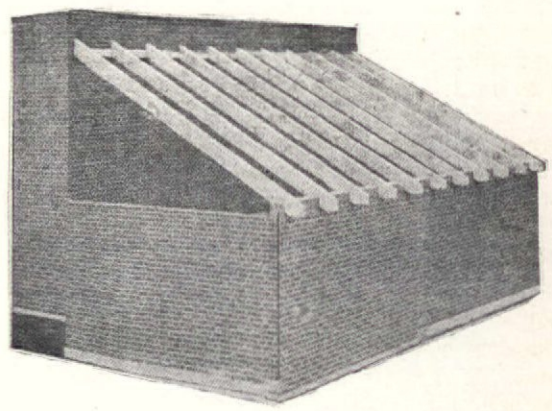


FIG. 4.

also divided into inches on the inside, these being subdivided into thirty-seconds; this is finer than usually desired for this purpose, but useful occasionally.

There are some other figures and scales on the square, the purpose of which will appear during the course of these articles, those already described being what really concerns the present subject. It may, however, be added that the steel squares are made dead true, both as regards the true right angle and the straightness of the arms. So true is the one belonging to the writer that he has used it for exact joinery work, as well as for the purpose it is meant for—carpentry.

Having thus cleared the way, how to frame an ordinary lean-to roof, all lengths and bevels being obtained by means of the square, from the plan only, will now be dealt with.

THE LEAN-TO ROOF.

The lean-to roof is the most simple of all roofs, and for this reason it is taken first in this series, its very simple character enabling us to show the principle of working apart from any complications in the roof itself. The complete roof is shown from two points of view in Figs. 4 and 5, and in section, as far as necessary for the present purpose, in Fig. 6, which will appear in the next instalment.

The width of the building is 8 ft., that is from the wall

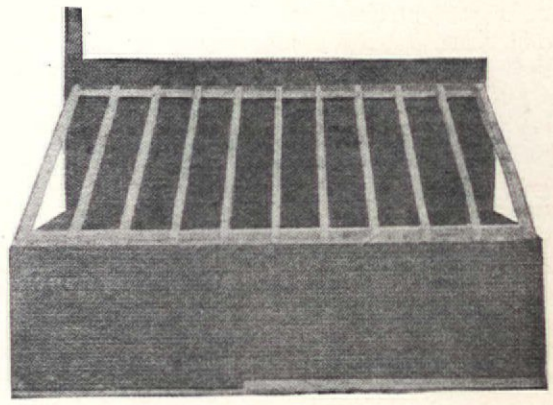


FIG. 5.

against which the tops of the rafters come to the outside of the wall plate, and the rise from the top of the wall plate to the top point of the rafters is 7 ft., this giving what is usually known as "tile" pitch. In passing, it is as well to say that a roof which has to be covered with tiles should not be made with less pitch than this, or there will be a risk of the wet finding its way in.

(To be continued.)

KEEPING THE MONEY AT HOME

Readers of THE BUILDER are deeply interested in keeping the dollar working, and keeping it working at home. At present, thousands of dollars are being sent away for "farms" or "lots" in distant states, when it should be kept at home. Money is "invested" in vacant property in new subdivisions and held for a rise in values when it should be spent in improving present property to produce an income.

No one thing helps a neighborhood more than to build a home in it. A large part, possibly one-third, goes out for labor right on the job. Fully as much more goes out for materials on which the local dealer makes his commission.

Every reader of THE BUILDER is interested in the building up, and every effort should be made to augment the movement "back to the homes." The architect can interest the owners in the newer and better methods of construction. The contractor is equally able to hunt up the people with a little money who are renting properties not entirely satisfactory, and others who have only to be urged a little to see the wisdom of having their own home now, instead of waiting until they have saved all the money necessary to pay cash for their home. When one considers that every house built means from $500 to $1,000 paid to mechanics in your own town, wouldn't it be well to make a little effort along that line?

In the building of homes of moderate cost, it is probable that building and loan associations take the lead. In the state of Illinois there are now nearly 600 such associations, with about $65,000,000 invested. One such association in twenty years has built 150 houses and is now lending nearly $3,000 every month to its members for building purposes. And yet there are carpenters and contractors, subscribers and readers of THE NATIONAL BUILDER who are not stockholders and are not keeping in touch with this means of increasing their business. Every builder should be interested in these associations, to know who anticipates buildings, and to be first on the ground to submit plans for their assistance and approval. The safest kind of business comes from it and you are keeping the money at home, where it was earned, and you are helping your friends and neighbors as well.

A DOLLAR DREAM

They wanted him to buy a farm
A thousand miles remote,
In regions that were full of charm,
The proud promoter wrote.
The more he thought and thought of it
The more he liked the scheme;
To think of it he used to sit—
And then he had a dream.

(Now, dreams are very foolish things
Undoubtedly, it's true—
Your brain puts on its fairy wings
And flies away from you;
And yet it seems that some of us
Our cash would never keep
Unless we learned a lesson, thus,
By falling fast asleep.)

He had a dream a dollar came,
With tears its features wet;
A dollar came and called his name
In anger and regret.
The coin was shedding silver tears
From out its silver eye.
He asked the reason for its fears;
The dollar made reply:

"They tell me you intend to send
Me many miles away,
They tell me you intend to spend
In speculation gay
The dollar that has been to you
A servant many years,
To send me to some region new—
And hence these silver tears.

"I've lived in this community
Almost as long as you;
I've been in ev'ry family,
I guess, but one or two—
But one or two who, sad to say,
Had such a scheme in mind
And sent their hard-earned cash away
Some other land to find.

"I am the dollar that was paid
To Johnson for his wheat,
That Johnson gave again in trade
To Murphy for his meat,
That Murphy gave to Smith, you see,
For furnishing a knife,
That Smith left at the grocery
For candy for his wife.

"The grocer gave me up to Jones,
Who runs the drygoods store,
And that the doctor set his bones
This Jones can thank me for.
The doctor paid me out for oats
To feed his dapple gray,
The feedman paid me on some notes
Fell due a certain day.

"The banker bought a book or two,
And so the thing went on—
Each night I had an owner new,
A new one at the dawn.
A welcome waited when I came,
A godspeed when I went,
In fact, a thousand ways the same
On errands I was sent.

"But now you say that I must go,
A wanderer to be,
Afar from all the friends I know
Who know and honor me.
I wonder that you dare to look
Me fairly in the face;
And in your empty pocketbook,
Oh, who will take my place?"

The speculator then awoke,
The dollar in his hand,
And softly to himself he spoke,
"At last I understand."
He gave it to the druggist's clerk
And bought a brush and comb—
He found a dollar does its work
The best right here at home.

Douglas Malloch,
in American Lumberman.

THE CONTRACTOR IS A SALESMAN

Probably it has not occurred to the contractor readers of THE NATIONAL BUILDER that they are salesmen. They are selling the materials and labor required to build a house.

We wonder if in talking with these clients they consider enough the need of salesmanship in securing their contracts. There is apt to be too much fear of losing a contract, and the anxiety prevents them from getting the right price for their job.

Just stop for a moment and consider the position of the man who builds. He is right from the "start off," at the mercy of the contractor. If you are a reliable contractor; have a reputation to keep, and have property or money to back it up, you ought to be able to get a better price than another contractor who has nothing. It is good salesmanship if you can show these points of advantage to the builder and receive his contract at a good figure.

A merchant comes to you for business, you have bought goods from him in the past and were not satisfied with the treatment received, you turn him down, and go to his competitor across the street and pay a better price. Just why do you do it? Simply because you found it pays.

Let us say you now have a chance to secure a contract to build a fine residence if you meet the other man's price. This other man is not reliable, and yet you are asked to take on a job simply because another has set a price. Good salesmanship talk here would bring you this job at your own figures. It is not necessary to run down your competitor. The thing to do is to praise your own work. Show him the buildings you have erected. Refer him to the people for whom you have done work.

LEAVES FROM A STUDENT'S NOTE BOOK. No. 1.

BY GEO. METSON

Brief particulars of the three metals, cast iron, wrought iron and steel are as follows:

(1) Cast iron contains from 2 to 6 per cent of carbon; it is brittle, crystalline on fracture and cannot be forged or welded. Its safe resistances to tension, compression and shear are 1½ tons, 7 tons and 1 ton respectively. Its weight can be taken as 37½ pounds per superficial foot of 1 inch thickness.

All castings should have their internal angles well rounded, as when cooling, the crystals set at right angles to the enclosing lines of section, so that square angles would cause fracture at their junction. In a lesser degree external angles should also be rounded.

All changes of sections should be made gradually, as a sudden increase in the thickness of metal would, owing to the necessarily unequal rates of cooling, cause cracking.

Cast iron for joists is practically superseded in construction by mild steel, but cast iron for columns or pillars is employed on account of its high resistance to compression, and also, because where required an architectural finish is obtainable by means of mouldings, caps, etc., though it must be remembered that mouldings are a source of weakness to a casting. If ornamental caps and bases are required, they should be added as an extra casting and be fixed to the column afterwards.

There is a risk of flaws and cracks in cast iron columns. The flaw may occur in one of the lugs, cast on for joining up, etc., to the grave detriment of the joint and the column as a whole, for which reason steel for stanchions is now more often employed.

It is as necessary to protect cast iron columns from fire as it is with steel staunchions. The incased steel work would bend, twist and even give way, at comparatively low temperatures, while though the cast iron column might crack, it would continue to support its load, unless melting temperature was obtained.

Rough tests for cast iron are as follows:

(1) Strike the edges lightly with a hammer. If pieces fly off, it is too hard.

(2) If the hammer indents the metal, it is too soft.

(3) If it can be cut with a knife at places it contains too much carbon.

(4) If a milled or machined joint shows irregularity; some parts showing humps above the general surface, the metal has probably been badly mixed.

(5) If the casting shows surface lines of indentation, it has been run into the moulds too cold.

(6) The casting may contain holes on the surface filled with sand, etc., which may be proved by striking the metal, when the sand may be displaced.

(7) Lastly, check the dimensions. If necessary, a hole may be bored in a column shaft to ascertain the thickness of the metal.

(2) Wrought iron contains not more than ¼ of 1 per cent of carbon; it is tough, ductile, fibrous, forgable, weldable. Its safe resistance to tension, compression and shear are 5, 4 and 4 tons respectively. Its weight can be taken at 40½ pounds per superficial foot of 1 inch thickness. It can be used for rolled sections, tie rods, bars, bolts, rivets, etc., and can at high temperature be pressed into moulds.

In the trade there are two classes of materials; namely, "merchant bar" and "best bar," the latter being used for constructural purposes, being tougher and more easily worked than the merchant bar.

Each of these two classes are again subdivided, viz, "single," "double" or "treble," according to the number of times the metal has been through the processes of piling and rolling.

For constructional purposes, mild steel has largely taken the place of wrought iron.

(3) Steel is made by adding carbon to wrought iron, or by extracting carbon from cast iron, and according to the percentage of carbon it contains, so it can be welded or cast. Mild steel may contain up to ½ of 1 per cent of carbon and can be forged and welded. It is softer and yet tougher than wrought iron. Cast steel is much stronger than cast iron.

One noticeable property of steel is that it obtains a higher degree of elasticity than other metals, and another that it retains its magnetic power having once become magnetized, longer than iron, but is slower than iron in becoming magnetic.

If sulphur is present in excessive quantities, it causes the steel to be difficult to weld, becoming brittle when at red heat. This is known as red shortness. If phosphorus is in excessive quantities, the metal becomes brittle when cold. This is known as cold shortness, and such metal is of no commercial use.

Mild steel is now extensively used for constructional work, as roofs, bridges, floors, stanchions, etc. Its safe resistance to tension, compression and shear are 6½, 6½ and 5 tons respectively.

Cast steel is used for tool making.

It is sometimes difficult to distinguish between wrought iron and steel, so the following brief items may be useful in this direction.

(a) Plunge the metal in doubt when red hot, suddenly into cold water; if it becomes hardened, it is steel, if it remains unhardened, it is wrought iron.

(b) Steel will show a finer grain on a cut than wrought iron.

(c) A drop of diluted vitric acid will show a darker stain on a piece of bright steel than on a piece of bright wrought iron.

(d) The steel will emit a clearer ring than wrought iron when struck with a piece of hard wood; the metal to be tested being suspended.

The following points require looking to in construction:

(a) Steel should be free from laminations which are caused by the ingot from which the metal is rolled containing honeycombs.

(b) The dimensions should be correct with proper camber and rivets at proper pitch, and the riveting properly extended. That countersunk rivets are provided where required.

(c) The metal should be tested for tensile resistance at some experimental works.

WATERPROOF CONCRETE PAINTS

THE committee on treatment of concrete surfaces of the National Association of Cement Users, has investigated a number of the so-called waterproof concrete paints and finds that they are much more efficient than colorless solutions.

These paints may be divided into two classes: First, those which give white, or light tints or other colors pleasing to the eye and of a decorative nature; and, second, those which employ compounds of tar and asphalt which are necessarily black or nearly so, and are, therefore, seldom used on exposed surfaces.

The presence of a finely-divided pigment serves to seal up the small pores in the surface of the concrete, leaving less work to be done by the vehicle.

In most cases the proportion of pigment used is small, and by using a cement color but little change in the surface appearance of the concrete need be made, unless desired, while on the other hand, almost any shade or color may be obtained. In this way the waterproof-coating is made more serviceable and at the same time ornamental.

All these treatments are applied with a brush in the same manner as paint and are probably as durable on concrete as paint is on wood.

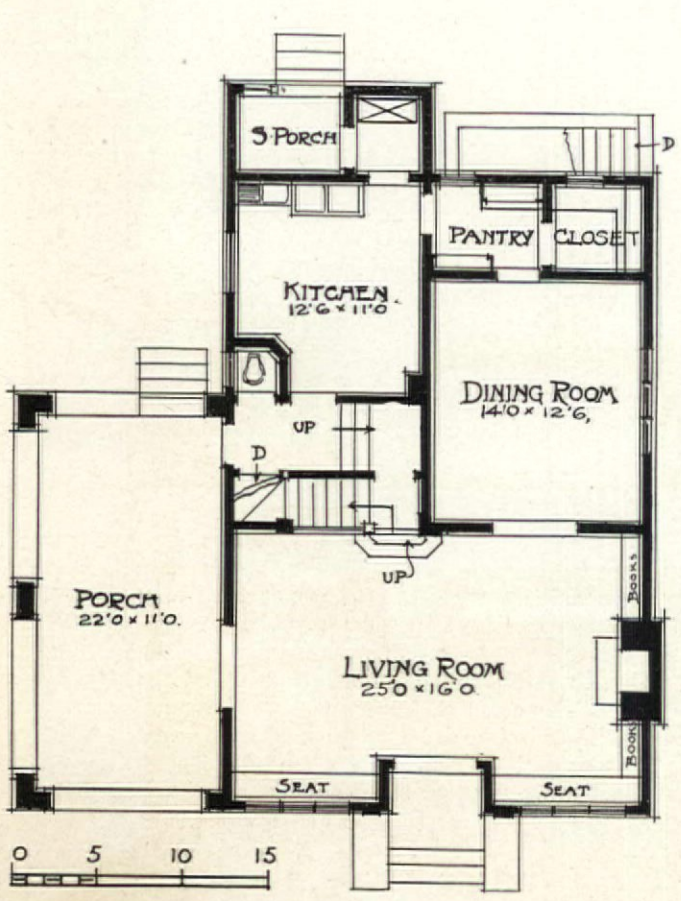
Linseed oil paints should not be applied directly to new concrete or to any concrete which has not been long exposed to the weather. The free lime in concrete not thoroughly weathered out on the surface by exposure to the elements will saponify the oil, destroying its adhesive power and its life, and the paint will soon scale off. After concrete has been exposed for a long time to the elements, linseed oil paint may be used with greater safety. It is difficult, however, to determine when the concrete is sufficiently free from lime to render it safe for the application of linseed oil paints, and it is therefore safer to avoid their use directly on concrete.

There are preliminary applications which may be given to concrete which renders it harmless to linseed oil paints. The best known, and perhaps the most thoroughly proven treatment of this kind, is that devised by Charles Macnichol, of Washington, D. C., and published in the transactions of the American Society for Testing Material for 1910. It consists in giving the concrete, after it has been thoroughly set, a priming coat of a solution of zinc sulphate, eight pounds to a gallon of water. This is applied with a brush, and after it is dry ordinary linseed oil paints may safety be applied over it.—*American Roofer.*

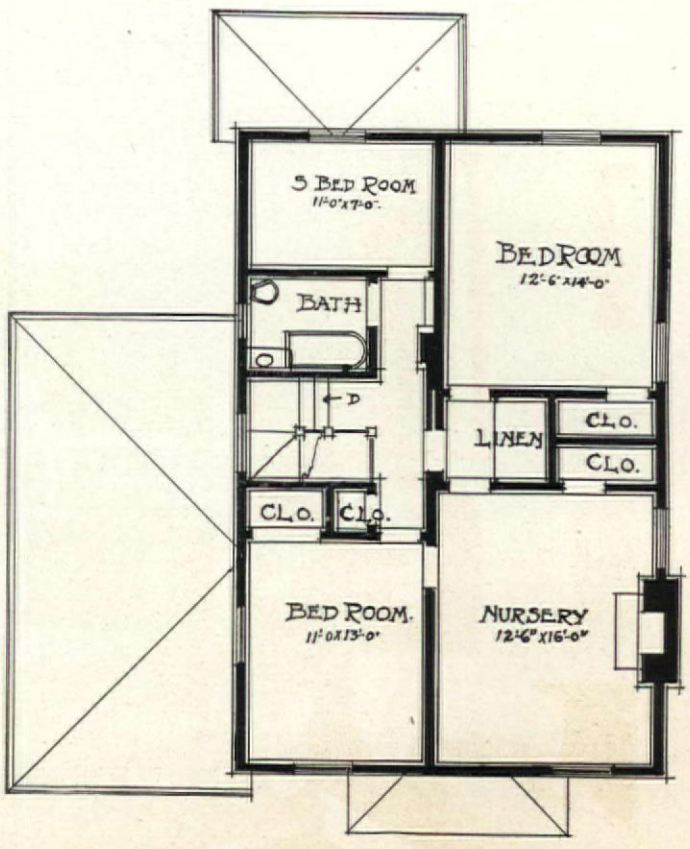


RESIDENCE AT HACKENSACK, N. J.

MANN & MAC NEILLE, ARCHITECTS.



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

A RESIDENCE AT HACKENSACK, N. J.

On a slight elevation overlooking the beautiful Hackensack Valley, the architects selected the shingled side house as best harmonizing with the surroundings. As will be seen the shingles are the old fashioned hand-split shingles one inch thick at the butt and exposed twelve inches to the weather. The enclosed porch can easily count for an extra room summer or winter.



DINING ROOM, RESIDENCE AT HACKENSACK, N. J. MANN & MAC NEILLE, ARCHITECTS.

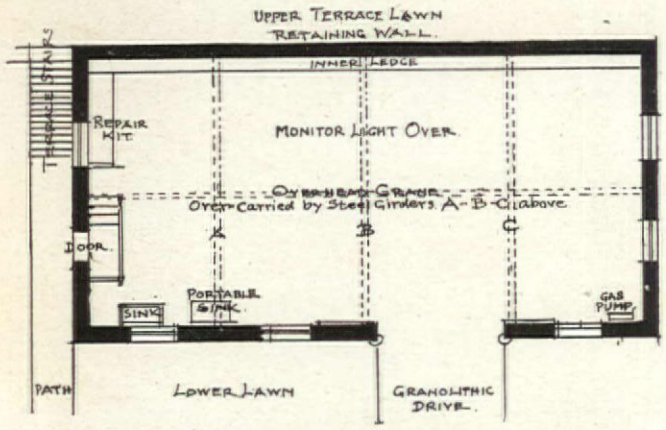


LIVING ROOM, RESIDENCE AT HACKENSACK, N. J. MANN & MAC NEILLE, ARCHITECTS.

PLANNING A PRIVATE GARAGE*

By HERBERT L. TOWLE

Now let us consider the floor space in figures. To do anything of consequence around a car a width of ten feet is necessary, and an additional 2 feet is often useful. According to the length of the car, the minimum fore and aft length of a small garage must be 18 to 20 feet, and may be a little more for very long cars. This gives room to work around both ends, after allowing for headlights, folded Cape cart hoods, etc., and it gives a little leeway to avoid breaking the lamps when one drives in. If there are two cars abreast, the required width will be about 18 feet. If, however, the cars are to be washed in position, about 4 feet additional is needed to avoid splashing one car when the other is being washed.



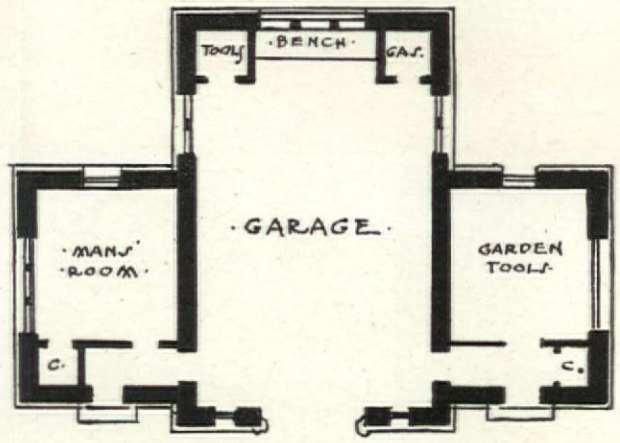
BY ALBERT WINSLOW COBB, SPRINGFIELD, MASS.

The bench should be 2½ to 3 feet wide, and from 6 feet upward in length, depending on the number of cars and the amount of work expected. Lockers, oil cans, etc., may be disposed in corners, but the gasoline pump and the washing hose should be near the door. An overhead trolley and chain hoist are useful. One end of the trolley should be over the motor, and the other near the bench. The machine tools, if any, should be near the bench, and they and the bench should have ample light.

If the body is to be staged at one side for overhauling or painting, about 5 feet will need to be added to the length of the garage from front to back, or 3 feet to its width.

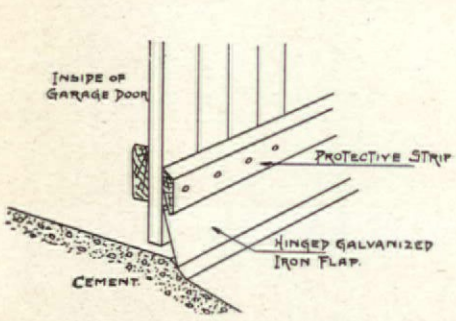
*Reprinted by permission from "Motor."

From these considerations we see that the minimum space required simply to house a runabout and provide bench room is about 14x20 feet outside. Even this is crowded; it allows no room for machine tools, none for swinging a sledge, and none for staging the body. It serves the requirements of the average owner who is satisfied to let the repair shop do most of the overhauling. For a touring car from 2 to 4 or 5 feet should be added to the length, and for two cars side by side the width should not be less than 20 feet.

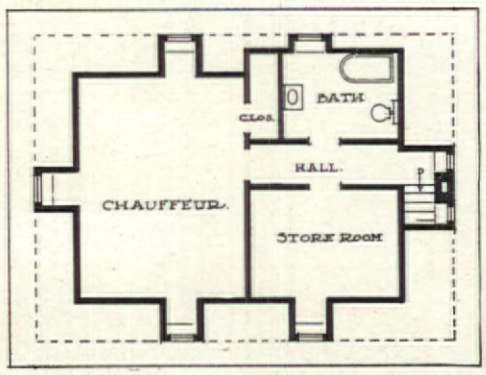


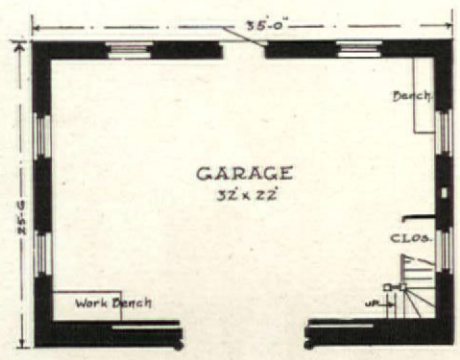
BY FRED. B. O'CONNOR, ALBANY, NEW YORK.

The above dimensions make no provision for heating, a subject which will be taken up later. Meanwhile we may remark that the heater should in all cases be partitioned off wholly from the room in which the cars are stored, and should be entered by a separate outside door, to avoid any possibility of explosive gasoline vapor reaching the fire. In the one-car garage a satisfactory arrangement is found by locating the heater at one side, with the shop space, as it may be called, beyond. It is even possible to run a curtain to screen the bench and tools from splashing when the car is washed indoors. A heater of some sort, it may be remarked, is essential for winter use in the latitude of Philadelphia and Chicago, as it is difficult to start an engine when the mercury sinks to 45 degrees, and it is physically impossible to do much work on the car at a lower temperature.

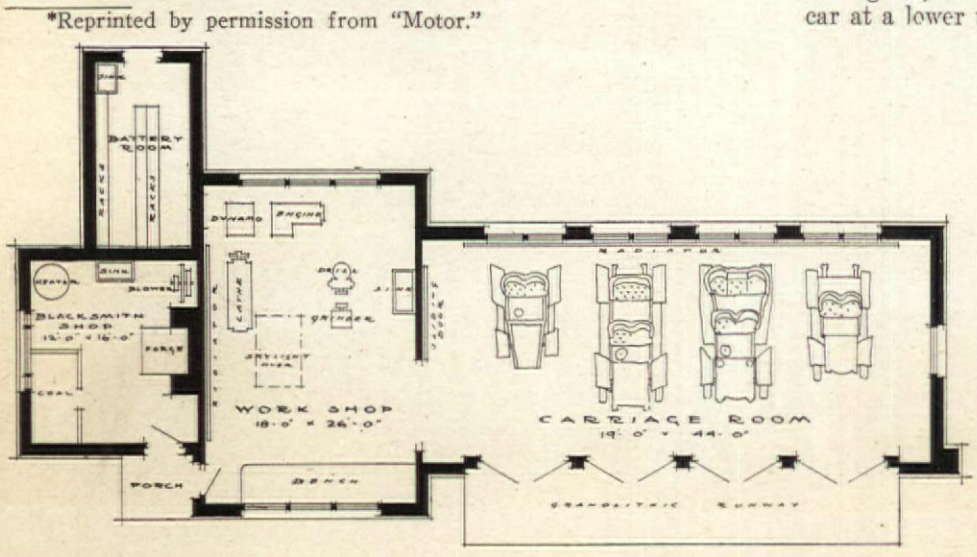


DOOR CONSTRUCTION SUGGESTED BY MR. TOWLE.

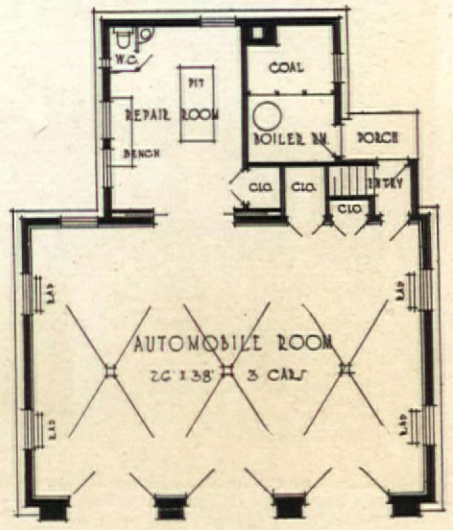




BY C. E. SCHERMERHORN, PHILADELPHIA.

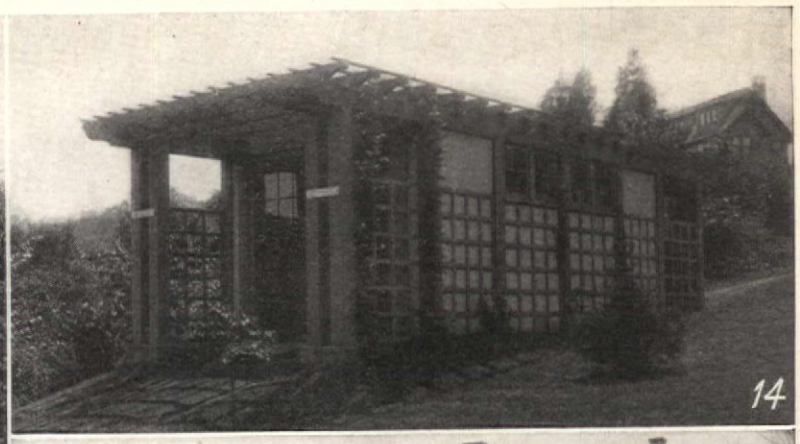


BY ANDREWS, JAQUES & RANTOUL, BOSTON.



BY BAILEY & BASSETT, PHILADELPHIA.


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The owners of the garages shown are:
10—Mr. E. P. Harris, Montclair, N. J. 11—A Suggestion from the Atlas Portland Cement Company. 12—Mr. Gustav Baumann, Belle Haven, Conn. 13—Mr. M. Gaines, Englewood, N. J. 14—Mr. Charles Snead, Montclair, N. J. 15—Mr. Geo. B. Wallace, Fitchburg, Mass. 16—Mr. Thomas Buck, Oak Lane, Pa., C. E. Schermerhorn, architect. 17—Mr. W. D. Denegre, Manchester, Mass., Andrews, Jacques and Rantoul, architects. 18—Mr. Charles E. Gibson, West Newton, Mass., Chapman and Frazier, architects.

POWER MACHINES FOR THE WORKSHOP

BY GEORGE E. WALSH

THE carpenter beginning in a small way may be at first content with such hand tools as he has always had, and possibly one or two foot-power machines; but as his business grows, and he finds it possible to enlarge his capacity by taking larger jobs he begins to figure on the equipment of his shop with some of the simpler power machines. It is true that mills perform so much of the work today that formerly the carpenter did entirely by hand that the necessity for equipping the ordinary carpenter shop with expensive machines may not appear so urgent to some as to others; but if one is to do efficient work of a varied character a well equipped shop is the key to success. The carpenter who can take, and do, all sorts of jobs is more than likely to get the bulk of the best trade in any locality.

When we jump from hand and foot power woodworking machines to those operated by steam, gas or electricity, the question of what sort of power should be adopted is the first to cause worry. In a general way it was impossible for the carpenter to equip his shop with steam power unless it was run as a mill too, for the expense of installation and operation was too great. It has only been in recent years that gas and electricity have come in as a factor in the situation. For the small shop the question is reduced to the choice of electricity or gas. Steam is out of the question where the work is intermittent.

As to elecricity for shop operation of machines, it is largely a question of cost of current. If electric current can be obtained at very small cost, which is possible in many parts of the country where hydro-electric power is developed on a large scale from waterfalls, electricity is an efficient power for shop work. In using this power one pays only for what he uses, and there are no losses when the motor is shut down. Thus if one wishes to saw up a lot of lumber of certain lengths, he can turn on the current and start the machines going. When the job is finished the current is shut off and expenses cease.

If the shop is equipped with only one machine such as a table saw a single motor direct connected to the machine or belt-connected will suffice. This motor must have sufficient capacity to drive the saw at full load. If two machines are installed, another motor can be direct connected to this the same as the first, but when three or more are put up the question is whether it will pay better to have a separate motor for each machine or all the machines driven by a single large motor by shaft or belt. We know that when power is transmitted by belt and shaft there is a loss amounting all the way from 10 to 20 per cent. That is, this power is wasted in driving the shaft and in the friction of slipping belts and pulleys. This waste must be taken into calculation in group driving. On the other hand the initial cost of installation may be less than to purchase an individual motor for each machine.

In theory and practice it may be said individual motor drive is the most satisfactory where the tools and machines are operated only occasionally, but in a shop where the operation of most of the machines is uniformly steady the group-driven system by shaft and pulley is the most efficient. The first cost of a small motor is proportionately greater than a larger one, and where a separate motor is installed for each woodworking machine there must be a duplication of power. Thus if we have four motors of two horse-power each in a shop to drive four machines, we have a total of eight horse-power. Now a single motor of five or six horse-power would undoubtedly be sufficient to drive all four of the machines if they were connected up by shaft and belt. The total aggregate of horse-power of a shop equipped with separate motors is therefore greater than in another using the group system of drive.

But there are other compensations. If anything happens to the shaft or motor in the group system all the machines are put out of commission. Where separate motors are employed a single motor may get out of order, and only one machine is stopped. The group system of drive is clumsier than the separate motor method, for there must be constant connecting and disconnecting of shaft and pulleys, and this takes time and often a good deal of labor to adjust things. Belts will slip and get out of order, and even shafts have a habit of breaking down. If a sudden hurry job comes in which calls for the operation of a single machine, it may be that all the others are connected up and these must be disconnected before work can begin. With the separate motor a touch of a button or turn of a switch handle throws the current on, and the work begins, and when through the motor is stopped just as quickly.

If there is no special price for current, the average carpenter will find the gasoline engine cheaper than electricity. There has been a good deal of prejudice in the past in equipping woodworking shops with gas power. Some have an idea that the danger from explosions is great, and that, with shavings around, the gas engine threatens the whole shop. Without doubt the gas engine is just as safe as any other form of power, and it is being generally adopted for all kinds of woodworking concerns. But it must be properly installed and operated. The adaptation of the gas engine to the carpenter's shop has reached a point where it is handy, safe and efficient. Saw outfits, for instance, are already made with the gas engine attached to the table in such a way sawdust and shavings can fall on any of the exposed parts of the engine without causing fire or clogging. The dangerous parts of the engine are inclosed in such a way that a child could run one without causing a fire of any kind.

The gas engine is the most economical power producer we have, and it is equally adaptable to automobiles, boats, airships, and shops and factories. The gas engine has the same advantage that the electric motor offers. That is, when work stops the cost of power generation also ceases. There is no waste of energy while waiting for the next job. This economy of power must be considered, for in the long run it amounts to a good deal.

The gas engine is also used in much the same manner as the electric motor, either for individual drive or in connection with shafting or pulleys. For a single woodworking machine a small gas engine of one or two horse-power will answer all purpose, but in a shop with several machines the extra cost of power to drive all of them will be very small. A five or six horse-power engine will usually drive all the machines that a carpenter shop will have. It is very seldom that all of the machines will be operated at the same time. If we figure upon an engine capable of operating three-fourths of the machines at once we will therefore select one of about nine horse-power for a shop that is really a twelve horse-power one. In general factory practice this is not considered good practice. The horse-power needed is figured for the full capacity of the shop when all machines are in operation at once, and this would be the correct thing in a woodworking shop where the running of all the machines at once is frequent. But the small shop rarely needs all of its machines at the same time, and it is perfectly safe to figure on the smaller horse-power capacity to save initial cost.

The shafting, pulleys and belting should all be made as light as possible to do the work, for the loss of driving these must be considered. Extra heavy shafting and belts make for losses. The shafting should be run in a straight line, and the gas engine should, if possible, be placed in the middle instead of at one end. Thus in a shop of four machines, two should be on either side of the engine. It is much easier to turn a shaft with the load evenly divided on either side of the center than with all the load on one end. The extension of the shafting can then be made in either direction to accommodate more machines as they are added.

A short shaft for only a few machines requires no coupling and cut-off arrangements. It can easily be turned without loss of much power. The machines not in use are disconnected by throwing off the belts. But when the shaft gets long it pays to have a cut-off arrangement so that a part of the shaft can be left idle. This cut-off system is very simply arranged when the engine is placed in the middle of the line of shafting. The drive belt from the engine is connected to a short length of shafting or a jack shaft with a coupling on each end, attaching it to the line shafting in each direction. With these couplings and convenient levers half the line shafting can be cut off and the other half operated. The whole shafting can be thrown into operation by a touch of the lever and all the machines started up as needed. The extra cost of this coupling equipment will be more than paid for in a short time by the saving of the power and of time in operation. A well equipped shop that works efficiently and economically pays better in the end than another clumsily arranged, and the owner soon realizes that it is economy to spend a little more at the beginning and have everything in first-class shape.

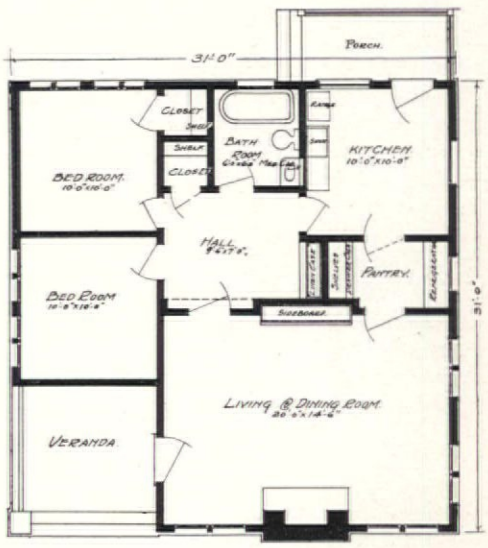


PERGOLAS IN THE WIDE STREET ADD TO THE PARK-LIKE APPEARANCE.

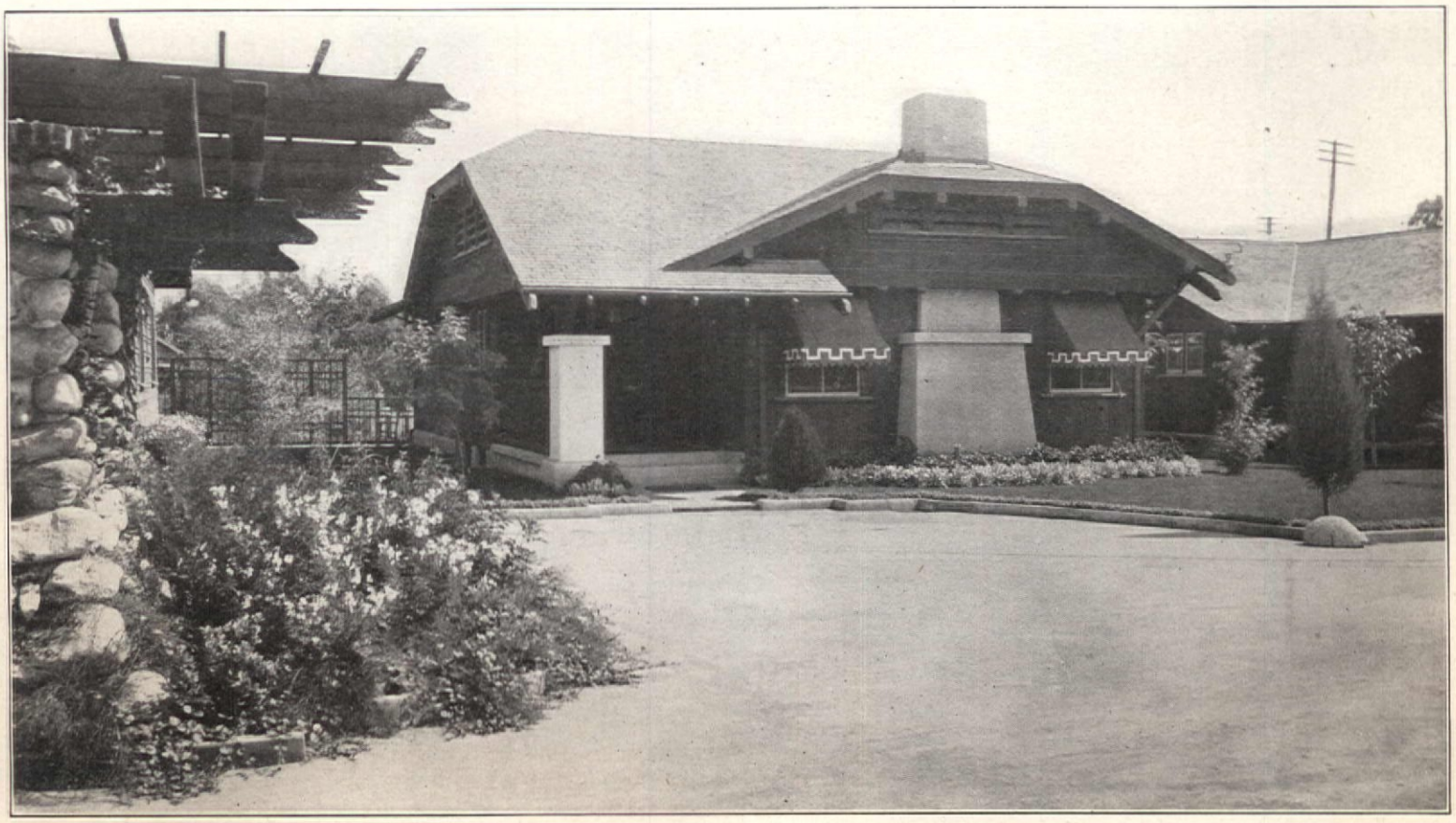
A CALIFORNIA BUNGALOW

Among the reasons for the charm and attractiveness of the bungalow are the possibilities for pleasing surroundings. It takes very little foliage to give a nestling, home-like effect, and when an entire district is laid out with the idea of harmonious surroundings, a little effort creates wonderful results. In the illustration shown herewith, the four-room bungalow is situated in a little park, and, although the buildings are rather close together the open spaces front and back overcome the appearance of crowding.

For the interior we have a very convenient arrangement, the large hall opening into all the rooms. No parlor would indicate the occupation of the whole house all the time, unless indeed the surroundings are so pleasant that one is tempted to stay outside most of the time. In a land of continual sunshine, where this bungalow is built, a parlor is really an unnecessary room, for one would not occupy it during meal time, nor would it be probably used for a bed room. Where the habit of sleeping out of doors, is strong, it is possible to effectually screen the porch and thus practically secure another room.



FLOOR PLAN.



PLACED WELL BACK FROM THE CURB, THE BUILDING IS EASILY ORNAMENTED BY PLANTS AND SHRUBBERY.

A SUBURBAN HOME

By LOUIS BAURY

THIS is one of the attractive suburban homes, situated within forty-five minutes of a large eastern city, which, while possessing all the essentials and characteristics of a $10,000 house, was built under contract for a trifle less than $5,000. The house, which has been occupied more than a year, is the work of William A. Lambert, a New York architect, who makes a specialty of houses that are both cheap and artistic. The low, picturesque treatment of the exterior is in pleasing harmony with the surroundings, the shingles, stained dark brown on the sides, with moss-green roof and white trimmings, combining to make a strikingly effective exterior.

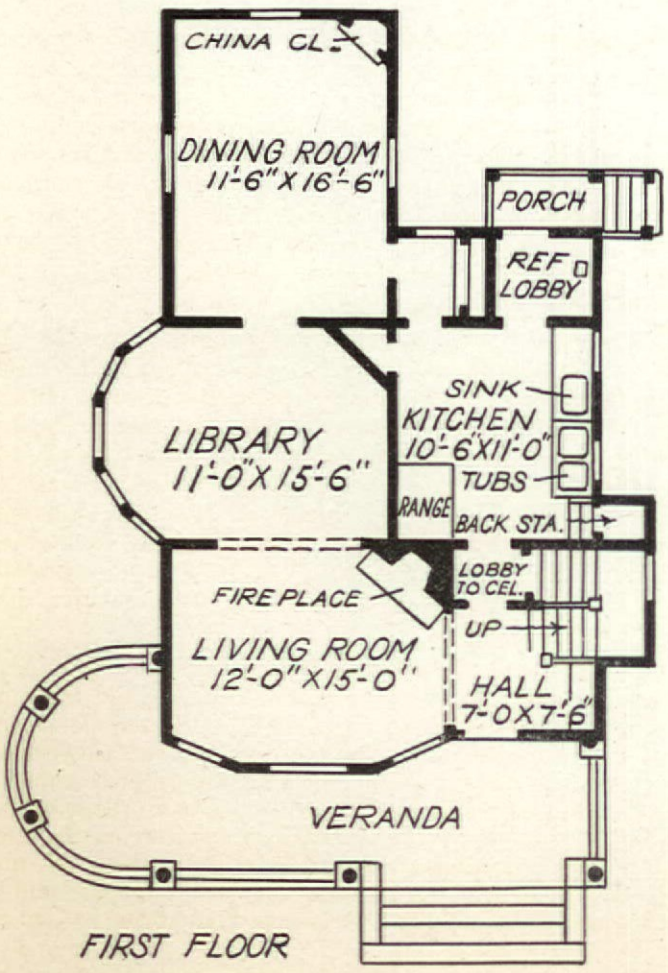


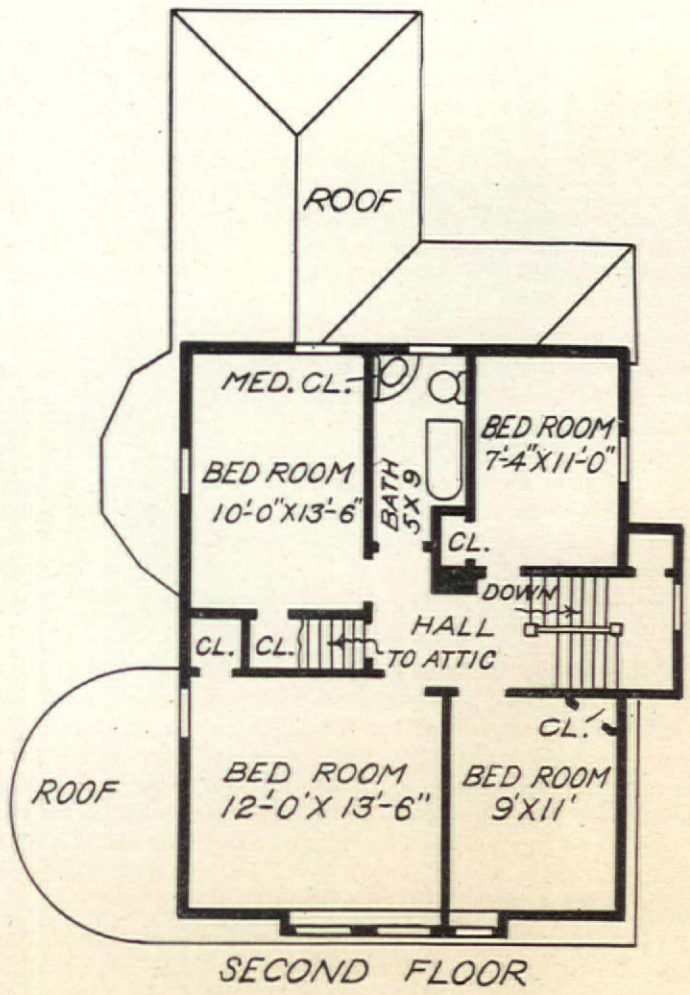


The little piazza, cuddled down in the southwest corner of the house, is large enough to serve as a playground for the children, or accommodate fairly good sized tea parties during the warm summer months, when eating out of doors is one of the pleasures of the country dweller.

The arrangement of the interior is eminently practical and convenient. One enters a cozy little hall, containing a staircase of oak, over which a stained art window sheds a soft, pleasant light. A long, low mission seat and railings, and newel posts, match the stairs. The family now occupying this house by simply piling the seat with cushions and throwing a rug across the floor space has given the hall such a comfortable, cheery atmosphere that it serves as a delightful lounging room.

The living room, library, and dining room are on the southern side and, by opening into one another, give an enlarged floor space of very pleasing appearance. In the living room is a tasteful fireplace and a parquet floor, two things which go far towards establishing an effective ensemble. In the library the cheery, homelike





atmosphere is preserved chiefly by means of a large bay window, through which the sun pours generously nearly all day and in the warmth of which all kinds of flowers thrive and blossom. A touch of dignity is lent by the columns between this and the living room.

The prevailing air of cheeriness extends into the dining-room, a large oblong place jutting out in the rear of the house. Windows on three sides admit a constant flood of light and sun; in one corner an attractive china closet is built, and the room is bordered by plate racks.

All three of these rooms, as well as the halls, are tinted, and the dining room is finished in burlap down as far as the plate rail. The ceilings are tinted in such manner as to harmonize with the woodwork, and, in the living room and library, heavy, old-fashioned beams stretching across the ceilings, give a rich, stately touch, which is not often encountered in houses costing as little as $5,000.

The remainder of the ground floor is given up to the kitchen and butler's pantry. The former is provided with a large cooking range, a white enamel sink and a spacious closet. The butler's pantry is compact and convenient, being fitted with the customary dresser and drawers.

One of the particular features of this floor is a platform connecting the main stairway with the back stairs, and forming what is known as "combination stairs," one of the most serviceable of devices in saving time and steps. The cellar is finished in concrete and has a complete steam heating apparatus, as well as coal and wood bins and storage space.

In the second story, there are four bed rooms, each large, airy, light and in every way sanitary; the two on the front of the house built out over the roof, thereby gaining a largely increased floor area. Each of these rooms have good sized closets and a splendidly arranged medicine chest is built into the corner of one of them.

The bath, sandwiched in between the two rear bed rooms, is of good size and has excellent ventilation through a large window. It is equipped with exposed plumbing, white porcelain-iron bath tub, an oval wash bowl of the same material, and an improved syphon closet. The woodwork is finished in white enamel, blending well with the fixtures. The floor is tiled, and the sides covered with metile, while the walls above are painted.

From this floor a staircase, uniform with that below, leads to the attic, which is floored and has one finished room, designed for the servant.

The windows on the first and second stories and in the attic are all fitted with hardwood wire screens, planned to stand more than the average amount of wear and tear from rough weather. The front and rear doors also have detachable screens, as have the cellar windows. Shades are provided for all windows, and the house is heated throughout, and lighted by both gas and electricity.

The exterior woodwork is painted two coats and the shingles then stained. Inside the woodwork in all the main rooms is stained, in mission finish, in dull brown, greens, and Flemish. Throughout are parquet floors, the whole combining to make a house of as much solidity as artistic effectiveness.

The detailed cost of this house was:

Carpenter work	$2,850
Masonry	925
Plumbing	325
Heating	300
Painting and decorating	210
Window screens	65
Gas and electric fixtures	85
Parquet floors	150
Electric wiring	65
Total	$4,975

A careful study of the accompanying plans will show how a few clever devices of the architect have caused a saving of nearly a thousand dollars, without detracting from the desirability of the house. Perhaps the most important is the extension of the second story over the piazza roof, thereby gaining a large amount of additional space at a saving of over two hundred dollars.

Another economical move was making one chimney serve for furnace, laundry, kitchen range, and fireplace. Lastly, the heavy beams in the library, which look so imposing and expensive, are nothing more than a part of the beaded floor of the rooms above. By allowing these beams to hang down, many square feet of plastering and a proportionate amount of outlay are saved.

A HUSTLING CONTRACTOR

By W. WEBB

BEING alert to the changes that are going on in our industry becomes one of the essentials that every carpenter, contractor or jobber should keep before him. If he understands and appreciates the fact that there is wisdom in doing things well, then he must appreciate the importance of making prompt deliveries, and of doing his work with alacrity. How to do this properly is one of the most important considerations that should be heeded by the man who has progressive ideas as to the conduct of his business.

He understands that when there is a contract to be let that unless he has been among the first in the field he will stand little show of gaining the reward of his labors. Once secured, however, the obligation of carrying out the tenets of the same demand more attention, and the greatest care. This includes all the details that are to become a part of the contract. One of these is in having the materials "on the job" with promptness. Upon this sometimes depends the future success of his undertaking. Let it become known that he is dilatory about this one matter, and the news will soon spread far and wide. It will be a source of annoyance and loss of business to him in all his future undertakings.

How is he to obviate this difficulty? By having his own team, is the most natural suggestion to make. Does he understand that the method of handling much of the modern day business is done along entirely different lines? With all due respect to the time honored horse, it is safe to assert that the day of this animal, for many purposes, is passing. Now the contractor who wishes to do hurry up work; to get material on the job with due haste, and who has no longer to depend upon the horse drawn vehicle, does so with his power wagon.

Does he understand that the motor wagon is replacing the horse drawn vehicle? That depends upon the way in which he views the trend of modern events. That depends upon whether he is a man of progressive ideas, or whether he is one who is still content to operate along the old ways of a generation age.

Time is now a factor that must be reckoned with in doing much of our work. It is as much the man who can do things quickly as can do them well that is in demand. If you operate a motor wagon in connection with your industry, the fact is soon made known to many, and the effect is at one like electrification. That means progress, and there is a certain prospect accorded the man who is a hustler.

The time, labor, cost and inconvenience saved by the contractor who uses a motor vehicle in his business is not to be compared with the opposite inconveniences that are met with by the man who still adheres to the old time methods. This is a fact that is worthy of consideration. The argument is made by some that the cost of operating a wagon of this type is too great to make it an advantageous mode of conducting that part of his business. How is the comparison when the cost of a horse, or a team is calculated? The motor wagon is only costly when in operation. The horse is still eating and still demands attention even after the work hours are past.

These are simply a few facts that have come to mind in the course of some rambles about cities and towns, and from observation of the methods that are pursued by the various contractors. It is always a notable fact that the man who is most prosperous is the man who takes the lead in doing things that count for the most in the end. It is observable that the man who is alive to the present day needs in the construction industry is the man who counts time as a factor that must be reckoned with, and who does not hesitate to adopt all means that will minimize and reduce such waste as is possible with means that are to be had if they are but sought out.

A BUILDER'S COURSE IN ARCHITECTURAL DRAWING.

RALPH F. WINDOES.

(Continued from May.)

DEVELOPMENT OF SURFACES.

THE process of unfolding the surface of an object, such as the coverings for the surfaces of solids, etc., and laying it out on a flat plane is called development of surfaces. It will be found a very interesting subject and one with which the student should become thoroughly familiar. It is suggested as a means of more thoroughly understanding the subject that you develop and cut out some of these surfaces from cardboard so they can be folded up to form the exact model in which they are intended to represent.

Next we will develop the covering for this prism. Draw the bottom line of the prism over to the right and on it lay off 6 spaces, *qr, etc.*, equal to one side of the prism, or *op*. Draw vertical lines up from these points and project points *a, b, c* and *d* over until they intersect these lines as shown in *s, t, u, v, etc.* By connecting these points we have developed the covering for the side of the prism. The bottom is the same as the bottom of the prism, so it is drawn in as shown. The top is the same as that developed at A and for convenience is drawn in at the highest point of the covering. Here we have *vw* equal to *kn*. With *v* as center and *vw* as radius

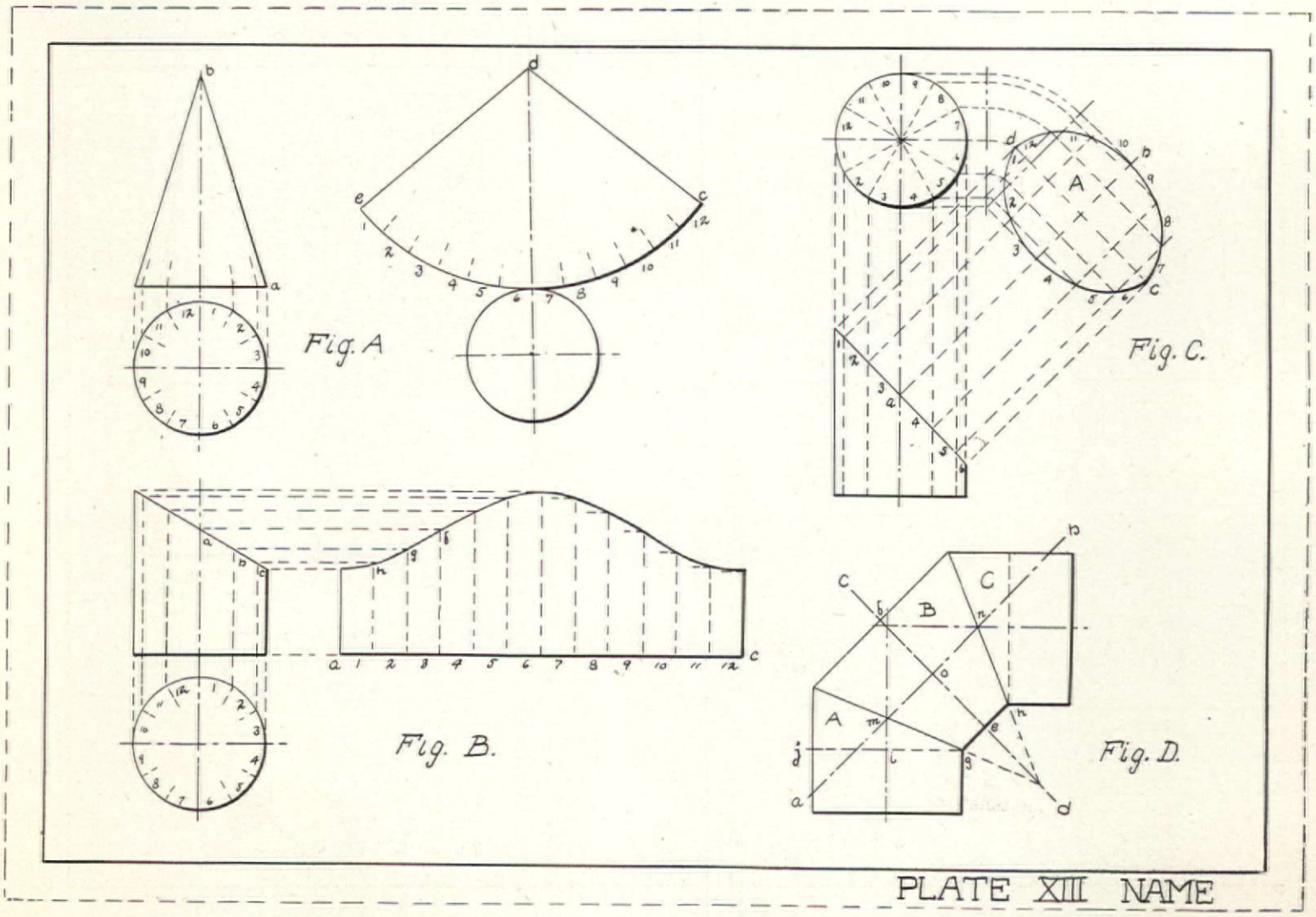


PLATE XII.

DEVELOPMENT OF SURFACES.

In Fig. A we have the hexagonal prism whose top is cut off at an angle of 30 degrees to the horizontal. First draw the half-plan and the side elevation, remembering that each side is equal to the radius of the circumscribed arc. Cut the top off at an angle of 30 degrees as shown in the drawing. It stands to reason that the sloping top of the prism will not be the same in shape as the bottom, so we must find its exact shape in order to determine the shape of the covering we wish to put upon it. We will view it at right angles to its surface and the result is shown at A. To draw it correctly, project points *a, b, c* and *d* at right angles to *ad*. Draw the center line *gh* parallel to *ef*. Set *kl* off equal to *ij* and draw side *km* parallel to *gh*. With *n* as center and radius equal to *nk*, draw the arc as shown and complete the view by connecting the points located.

draw the arc as shown. Make *wx* equal to *ky* and draw *vx*. Bisect angle *wvx* by the center line which should be parallel to *wx* if properly done. Make *we* equal to *mk*, and parallel to the center line. Draw *vz* equal to *ng* and finish the development.

In Fig. B we have the frustrum of a hexagonal pyramid, the top being cut off at an angle of 30 degrees to the horizontal. Construct the prism as shown, starting with the plan view. To draw this, first construct the hexagon and then draw diagonals from opposite corners of it. Project the point where they cross in the center up to form the apex of the pyramid. Project the corners of the plan up to the base line *ab* and connect these points with the apex. This forms the pyramid. With the 30 degrees triangle cut it off as shown and project the points of intersection with the sides down to the plan where they will cut the diagonals. When these points are joined we will have the plan view as shown. The section lines are put on for the sake of clearness. The sloping top at B

is developed in the same way as the one at A, remembering that *cd* is equal to *ef* and *gh* equal to *ij*.

To draw the development, first draw the arc *kl* with a radius equal to the length of a true side of the pyramid as from *a* up to the apex. Bear in mind that this side would be longer than from *w* up to the apex as you are looking at the latter as it slants away from you. Next lay off *km, mn,* etc., equal to a side of the base of the pyramid. Connect these points with each other and with point *o*. Continue by laying *kv* off equal to *bp* and *wx* equal to *as*. As we said before, *wg* is not viewed in its true length, but if it is projected horizontally over to *as,* a side that is shown in its true length, we obtain it exactly as it should be in the line *au*. Then lay *mz* off equal to *au*. Do the same with point *r* and *at* gives its true length. Lay this off on the development and repeat all of these lengths on the other side of *xy*. Connect these points. The covering for the top is put on in the same way as the covering for the prism and the bottom is self-evident.

On another sheet, or two, develop the surfaces for the solids shown in Figs. C, D, and E. Fig. C is a hexagonal prism, Fig. D a hexagonal pyramid, and Fig. E the frustrum of a square pyramid. No difficulty should be experienced in the working out of these problems as they are much more easily solved than the ones already explained.

finish the development by putting on the circular bottom.

In Fig. B is given a hollow cylinder whose top is cut off at an angle of 30 degrees, and the surface development of the same. Draw the plan and the side elevation and divide the plan up the same as was done in the case of the cone. Project points *1, 2, 3, etc.,* up until they cut the top of the cylinder as at *a, b, c, etc.* Draw the base line of the development *de,* and on it lay off the twelve equal spaces. Draw the verticals up through these points and project *a, b, c, etc.,* over until they cut these verticals. This locates points *f, g, h, etc.* Through these points draw a neat irregular curve, as shown.

Fig. C presents a problem. Here we have a cylinder, its top being cut off at an angle of 45 degrees. It is required to draw its development. As seen at A, a perpendicular view of the face takes the form of an ellipse. The method of locating the points shown on its edge, through which the curve is drawn, is left for the student to solve with the help of the numbers given. Notice that *ab* is perpendicular to the sloping top, and *cd* perpendicular to *ab*. The covering is developed in the same way as the one in Fig. B, but with the addition of the top and bottom as this cylinder is solid.

Fig. D is the drawing of a three-piece elbow. Only the side elevation is here given. The development of it is required. Draw the indefinite center line *ab* at an angle of 45 degrees, and draw *cd*

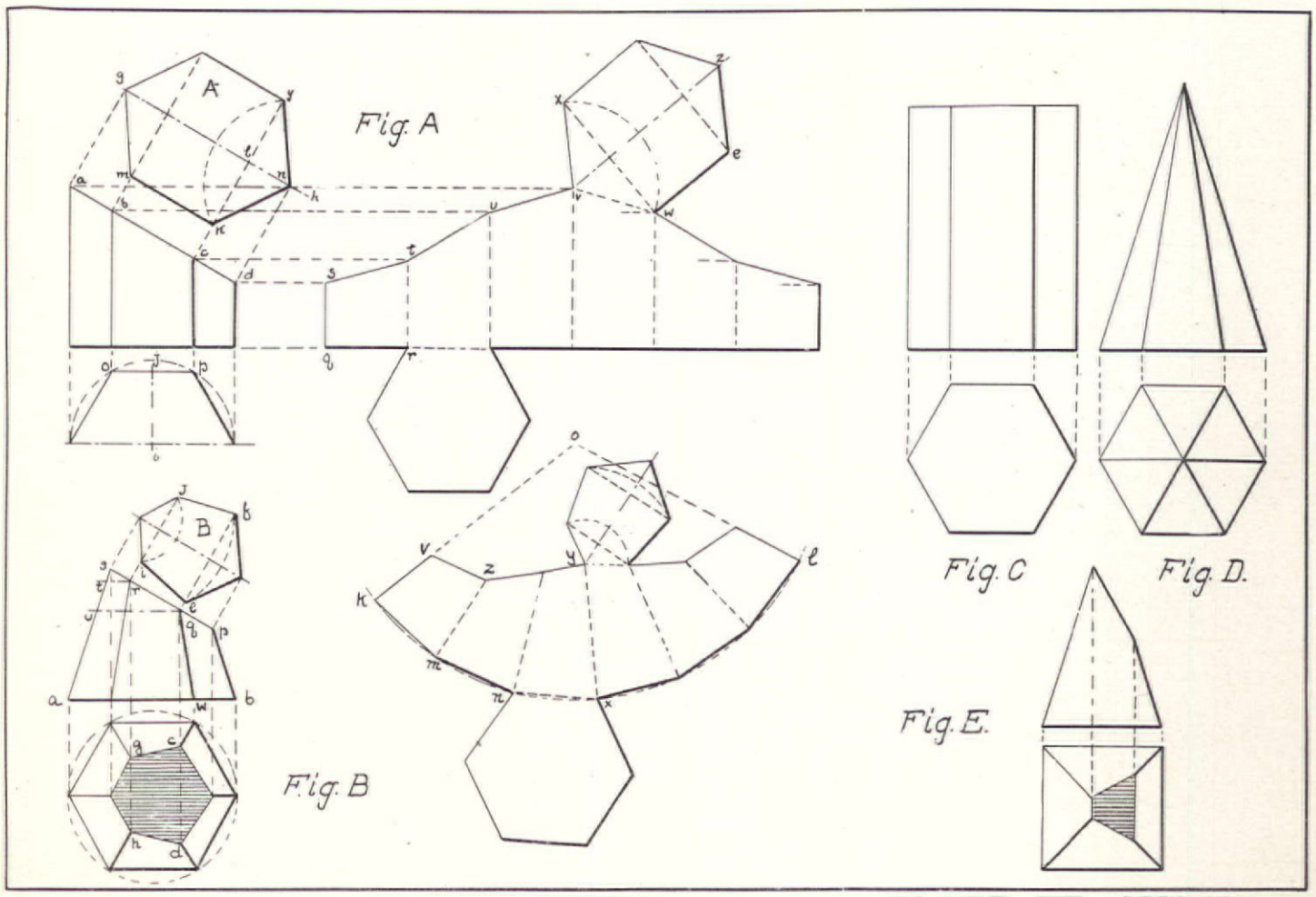


PLATE XII. NAME.

PLATE XIII.

DEVELOPMENT OF SURFACES.

On this plate we have a few problems in the development of cylindrical surfaces. There is a great similarity between these and those on Plate XII, but extreme care should be used in working them out.

In Fig. A we have a cone and its development. First draw the plan and elevation, making it any height desired. Next divide the circumference of the plan into any number of equal parts, in this case we have taken twelve. Next set the compass point at *a* and with a radius equal to *ab,* the slant height of the cone, draw an arc. Connect one end, as *e,* with *d* and with the dividers lay off the twelve spaces as shown, each equal to one of the divisions on the circle. It is easily seen that the more spaces the circle is divided into the shorter the arc between the points becomes, hence the nearer *ce* would approach to exactness. Connect *c* with *d* and at right angles to it. Lay off from *o, oe* and *of,* each equal to half the diameter of the pipe. Supposing *gh,* the length of the shortest element of the center piece known, draw through *e* a line parallel to *ab,* and set off the distances *ge* and *eh,* each equal to half this length. From *g* draw the horizontal *gj* and set *ig* and *ij* off equal to *eo*. Draw the verticals through *g* and *j* and through *f* draw a line parallel to *ab*. This gives us the intersection of the bottom piece with the center piece. The top piece is drawn in exactly the same way, working from the center lines of each member.

The development of this pipe is easily worked out if sufficient care and forethought is exercised in so doing. Pieces A and C are alike and are developed in the same way as the piece in Fig. B. Piece B is similar but it has the curve on the top and bottom. In developing it, it must be separated from the main body so that *cd* is a horizontal line.

(To be continued.)



OUR READERS' PAGES

[The Editor does not hold himself responsible for the opinion of correspondents. Short, crisp letters will be appreciated. To insure publication, the name and address of the writer must accompany the communication, not necessarily for publication. Sketches of work or methods will receive our earnest attention. These columns are open to our readers at all times without cnarge, and any questions or experiences will be given proper space.—Editor.]



ANSWERS

ESTIMATING BY THE CUBIC FOOT.

From "Estimator," Yonkers, N. Y.

In reply to J. L., Staples, Minn.

In estimating the cost of building by the cubic foot method, the entire cost is comparative only; the contractor should make it a point never to use this method when he has time to take off the quantities in detail.

As a means of checking an estimate, it is an excellent method, but there are so many details entering into the construction of a building that it requires considerable experience to know what unit price to put upon the several structures.

As you will note in the July number, the price for cubic feet for cottages varies from 3c to 14c, all depending upon the detail of finish and construction.

In each of the prices quoted, you will note a difference in the construction and finish, which causes a difference in the prices.

As a general rule, a building is figured complete, including basement, walls, floors, roof, interior finish, painting, etc. The construction and finish being what is ordinarily settled in a building of that particular character. In taking the measurements for estimating by the cubic foot, it is the practice to measure about one foot below the basement floor and up to a point two-thirds of the distance from the eaves to the roof or to the ridge for the height, and to take the average for ordinary size on the ground for the other two dimensions, disregarding balconies, porches, chimneys, etc., unless they are of such a character and size as to make it necessary to include them.

If you will check up the cubic feet in the buildings you have erected and compare with the cost, you can easily find just what these buildings have cost per cubic foot, and this will give you a good basis for comparison for future work.

You can also figure the cubic contents of the various plans which have appeared from time to time in THE NATIONAL BUILDER, compared with the estimated cost, which will also give you an excellent basis for calculation.

STEEL SQUARES.

From Wm. P. T. Trenton, N. J.

Young framer, of Seattle, Wash., has evidently gotton hold of one of the real good, old framing squares of fifty years ago. The eagle square was made in Troy, N. Y., and was the standard square for many years, and I might say, that away back in the fifties it was every young carpenter's ambition to own a good eagle square, and in those early days, when dollars were as difficult to get as gold eagles are now, it was quite an event to purchase a reliable steel square. The old square was strong, true and very reliable, but, of course, the figuring and rules on it were antiquated, and difficult to understand. The Sargent square, No. 100, is very much superior in makeup, figuring, finishing and tables, and is very much better for present use than the good old Eagle. The square made by the Nichols Company of Ottumwa, Iowa, is another good square, and possesses many features that add to its value. One feature is that the corners of the square, including the ends of blade and tongue, are hardened, as hard as steel can be made, a process that prevents wear on the corners. This firm is also manufacturing a square in which the tongue can readily be disconnected from the blade, thus enabling the tool to be stowed away in a very small space. The square also carries a table on its surface, for getting the cuts, bevels and lengths for braces, rafters and hips.

LUMBER SYMBOLS.

From T. N. B., Chicago, Ill.

I reply to H. A. B., Cleveland, Ohio, with regard to lumber signs, the expression 18,803 8 in. No. 122 siding means, 18,803 square feet of No. 1 double V siding, 8 inches wide.

The expressions, 12/10, etc., are to indicate the numbers and lengths in which the material is to come. That is twelve pieces ten feet long, etc.

The expression S1S1E means that the lumber is surfaced or planed on one side and one edge, the other two surfaces being just as they came from the saw.

DIVIDING ANGLES.

From "Draftsman," Chicago, Ill.

In answer to W. G. L., New Haven, Conn.

There are several mechanical methods of dividing angles into several parts, but the simplest and quickest method is to describe an arc through the angle, using as long a radius as possible. With the dividers, space off the arc into the required number of parts and draw lines from the center "A" to the subdivisions.

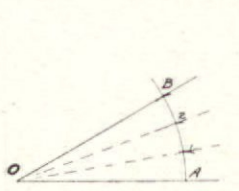


Fig 1

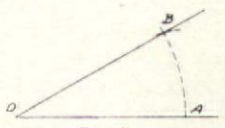


Fig 2

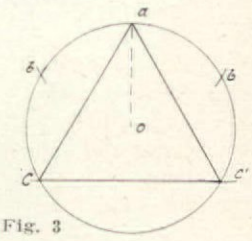


Fig. 3

FIGS. 1 AND 2.

To lay off a given angle, draw an arc, using the same radius as before. With the dividers or a compass, measure off the arc of the given angle and lay off this distance on the second arc.

To inscribe an equilateral triangle in a circle. In the given circle, Fig. 3, draw a line *o a* from the center to the circumference. Lay off this distance twice from *a* to *b* and *c*, and from *a* to *b'* and *c'*. Through the points thus found, *c* and *c'*, draw the lines to form the triangles.

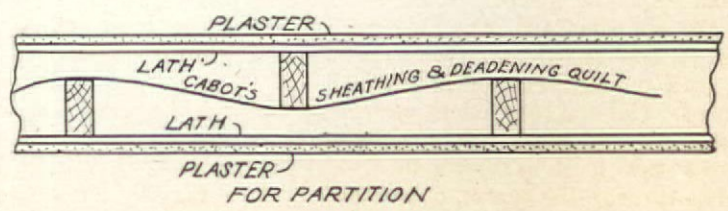
DEADENING FLOORS.

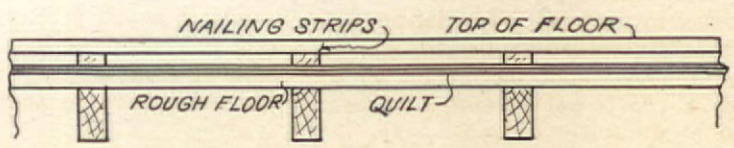
From "Builder," Chicago, Ill.

In reply to Fred, Flint, Mich.

The question of sound-proofing is rather difficult, as the sound may be carried through the air, or through the boarding of the floors and partitions. The method suggested by the manufacturers of Cabot's sheathing quilt is shown below. It will be noted that no part of the partition extends through, except at the top and bottom. This method should take care of any sound except that which originates on the floor. The same "Quilt" may be used between double floors, laying the quilt directly on the lower floor, and nailing the top flooring to strips which are simply laid on the quilt, care being taken that the flooring nails are not long enough to go through the strip into the lower floor.

"Linofelt," made by the Union Fibre Company, is a prepared deadener for the same purpose. Get the catalogues of these two firms and you will see the best way to use them.





QUESTIONS

HOSPITAL.

From a "Committee Man," Edmonton, Northwest.

I am one of a committee appointed to make inquiries, and arrange if possible for the building of a general hospital, and would like to get such information as will be of use to the committee in determining the "lay-out" of the building—which is to be of brick—and requirements necessary. It is intended to design the building so that it will serve a city of say 50,000 people and so arranged that at present it may serve 10,000 or 15,000 people, and can be added to as necessity requires. Any information or suggestions on the subject will be gratefully received.

MEASURING A CIRCULAR ARC.

From "Young Bricklayer," Dayton, Ohio.

Will some kind reader explain in this department, how to find the length of a circular arc, and oblige a new reader?

SIX, EIGHT AND TEN.

From "Country Contractor," Prairie Farm, Francis, Sask.

I have heard and read concerning a rule for squaring the foundation of a building by the use of a ten-foot pole from which the figures 6, 8 and 10 are used only. Please describe how this is done?

DAMP-PROOF WALL.

From "Plasterer," South Bend, Ind.

I wish to make a brick wall in a measure "damp-proof." There is less than fifty yards of wall surface, but at times, after rain in the spring and fall, it shows signs of dampness. Can I cure it by plastering it with cement, and if so, how will I proceed to get the best results?

TO DRAW AN ELLIPSE.

J. E. L., Shenandoah, Iowa.

Permit me to ask through your columns how to draw an ellipse, major axis 4½ inches in length, the minor axis 3 inches in length (with just a rule or square and dividers), the shortest and quickest way.

CUTS FOR DIFFERENT PITCHES.

From H. H., Emporia, Kans.

It would be valuable information to me if some one would explain how to get the different cuts and the lengths of the valley and cripple rafters; where, for instance, a third-pitch roof is joined to a half-pitch roof.

How do you get the cut for the foot of the common rafter of, say, a third-pitch roof running parallel with a half-pitch roof, and resting on the sheeting of the half-pitch roof? I want to know how to get these cuts with the steel square without making a drawing.

BUILDING A BALANCED RAILWAY.

From G. S., Clayquot, B. C.

I have to build a track to haul up provisions from the beach up on high land. The track will have about 2 inch rise a foot run. It will be a double track and one car filled with water. Shall on the down track pull up a load on the other. Now I would like the editor, or any other reader of THE NATIONAL BUILDER, who has had experience, to give his opinion if the scheme will work and if so, would like to have a plan how to arrange the drum and brake—in short, would like to have some information about it.

PLANS FOR GYMNASIUM.

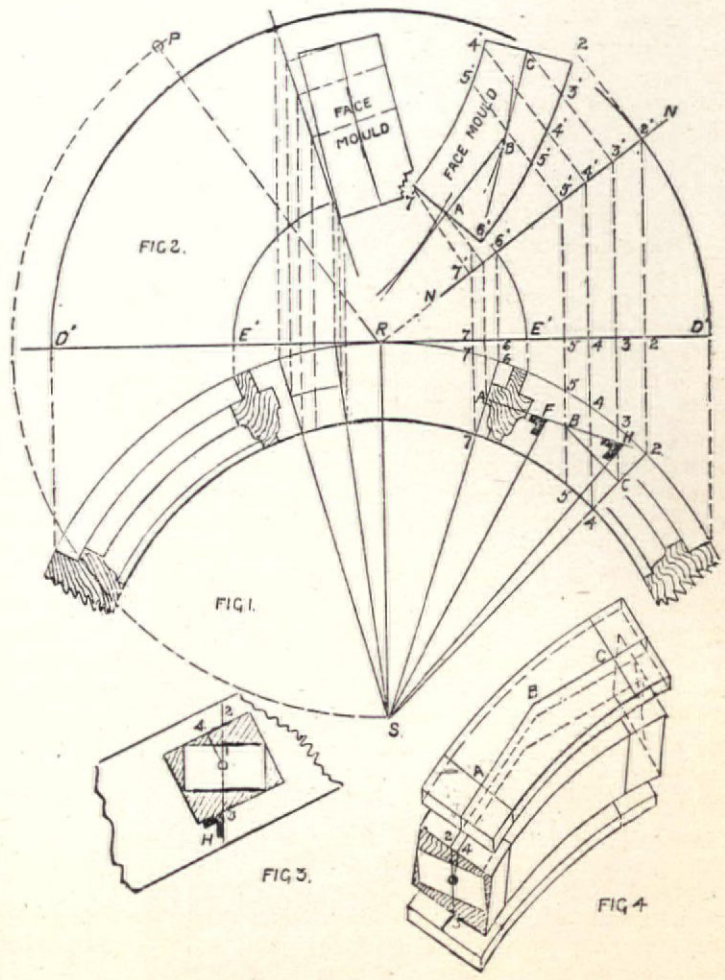
From J. W. A., Birmingham, Ala.

What is the usual floor space of a college gymnasium, where can I get any plans, especially floor plans for a gymnasium suitable for a college?

RADIAL BARS FOR CIRCULAR SASH

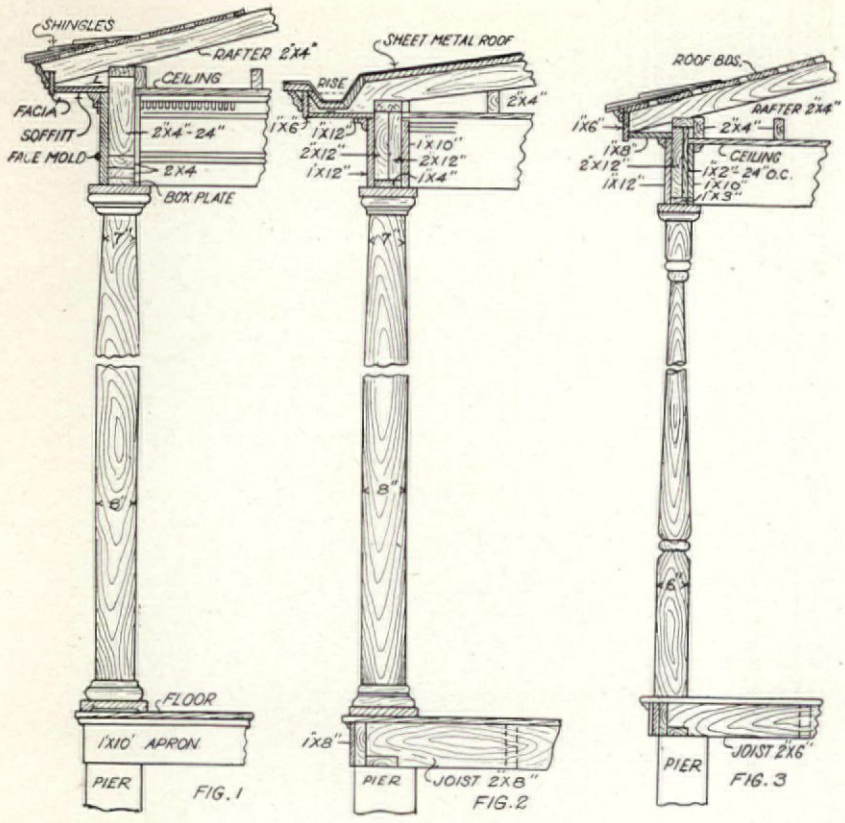
THE accompanying sketch shows a method of getting out the radial bars for a sash circle on plan and semi-circle in elevation.

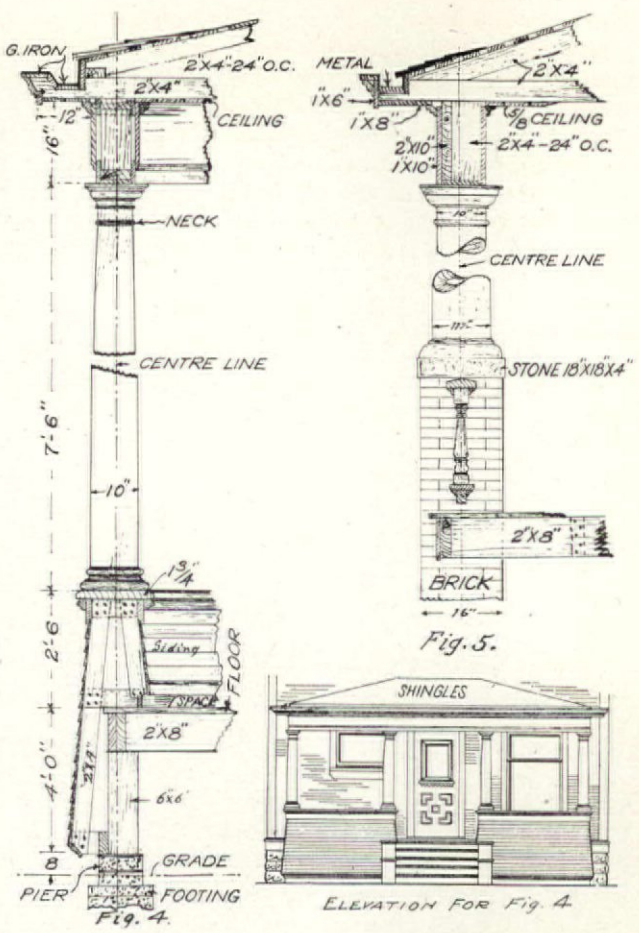
Fig. 1 shows the plan, and Fig. 2 the elevation above the springing. The semi-circle, D′D′, Fig. 2, represents the rebate for glass, also the depth of the sinking of moulding on inside of sash. The shoulders on top end of each radial bar would fit against this. The semi-circle, E′E′, will be the shoulders on bottom end of radial bars. N N represents the centre of lower bars. Make 2′2′, 3′3′c, 4′4′, 5′5′, B5′, etc., Fig. 2, equal corresponding figures, Fig. 1. Join A B and B C for tangents. Trace the outside of mould through 2′, 3′, 4′, 5′, 6′, and the inside through 4′, 5′, 7′. Draw the lower joint through A square to A B, and the upper joint through c square to B C. A bevel for each joint will be required. From R draw the line R P square to N N, and make R P, Fig. 2, equal R S, Fig. 1. With P as centre, and for radius strike an arc to just touch the tangent, C B, on face-mould; with this distance in the compasses place one foot at S, Fig. 1, and cut either of the tangents on plan as shown at H. Then the required bevel is contained in the angle made by the lines AHS. Repeat the process for the joint at A, only touch the tangent A P on face-mould instead of C B. This bevel is shown at F. To find the thickness of stuff draw the bevel H across a piece of board (that being the sharpest of the two bevels), draw a square section of the bar square to this line, as shown by the unshaded part, Fig. 3; the shaded part shows the thickness of stuff. Leave a bit of stuff on each end of face-mould past A and C to allow for tenons. Cut the bars out to pattern of face-mould square through the plank, and mark the tangents on to it. Square the tangents across each joint as shown by 0 4, Fig. 3. Pass the respective bevels through the centre, o, as shown by 2, 3, Fig. 3. Draw lines on face of stuff from where the bevels cut the edge of joints parallel to tangents. The tangents on face-mould would be kept to these lines when applied for working inside and outside of bars. The application of face-mould on both sides of stuff is seen at Fig. 4. It is not necessary to describe the other bars, as they would only be a repetition.



FIVE STYLES OF PORCH DETAILS

BY STEVENSON





Porch building brings into play a great variation of details; when the carpenter is supplied with complete working plans and details for the job all these should be shown clearly.

There are, however, many cases where the carpenter is called upon to work out his own details and it is with this thought in mind that the writer offers the five sketches herewith shown, to aid the carpenter in this work.

I am not dealing with the platform and joist to any extent, as these are all pretty much the same in all cases and are fairly well understood by all carpenters.

What I wish to deal with mainly is the building of the box plates and cornice. Fig. 1 shows the frame for the box plate made with double 2″x4″ at the bottom, and single 2″x4″ on the top for plate, with 2″x4″ struts cut at about 24″ centers, the ⅞″ facing boards being well nailed to this frame-work. L shows the bracket nailed to the rafter tail to form the lookout to receive the soffitt of the cornice; this is a good, suitable box-plate for a span up to 12′. Fig. 2 is two 2″x12″, spiked together and cased in with ⅞″ boards. This method should be followed for spans of 12′ or over. Note the manner of framing for the gutter.

Figures 3, 4 and 5 are other methods that make very good plates for spans up to 12′. It must be remembered, however, that if the porch is to be a double decker, where a greater weight than the roof will be upon it, it must be made still stronger.

Figure 4 calls into play a little different detail at the base in order to provide for the splay in the siding as noted by the elevation, which the details clearly explain. Fig. 5 shows a brick pier above the top of handrail showing the detail of the rails and balusters.

A RIDGE VENTILATOR

BY F. W. LOASBY

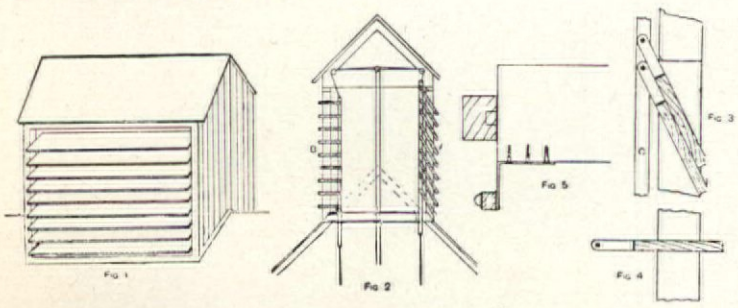
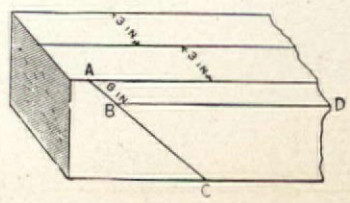


FIG. 1 is an elevation of a suitable roof ventilator, the dimensions being ruled by the size of the building to be ventilated. The framework is of 4½-in. by 3-in. pine posts, 6-in. by 3-in. sills, 4½-in. by 3-in. beads, the ends being boarded on the outside. The roof is similarly covered, and both are covered with zinc or other suitable roof covering. Fig. 2 is a section showing the louvres closed, giving permanent ventilation; on the opposite side they are open to the full extent. When the louvres are required to exclude ventilation, they are framed as seen in Fig. 3. Fig. 4 shows a louvre open to full; Figs. 3 and 4 are in section; Fig. 5 is a plan of the same louvre. On the edge at the end of the inside of the louvre boards are fixed angle iron brackets; the projecting ends are drilled to receive a small bolt by which each is secured to the operating rod C; this rod is of hardwood. To work the louvres a cord is attached to each end, and on the inside top end rail are fixed pulleys to receive the cords. In the center is fixed a double sheave lazy pulley, over which the two cords are passed, so that both sets of louvres are controlled over the same pulley. The position of the louvres being determined, the cords are secured to a cleat hook fixed at a convenient height from the floor; a cord fixed to the lower end of operating rod enables the louvres to be easily opened.

BACKING HIP RAFTERS



The enclosed sketch represents a stick 6x8, and the line A the foot of the rafter. Take half the face of the stick, which in this intsance is 3 inches, and mark from toe of rafter 3 inches along the line A. By this you have the point from which to draw the line B. This rule is correct every time.

STEEL SQUARE PROBLEMS

By J. E. NUITT

Being an interested and appreciative reader of the BUILDER and interested in steel square problems, as discussed therein, especially as applying to hip roofs, etc., I herewith forward some problems relative thereto, and hope some of your readers may gather some light on what is generally a puzzle to the "prentice" hand, or to that vast army who "just look it up." Abe Lincoln said that a "man's legs should be long enough to reach the ground," and should as sound principles admit of universal application, a hip rafter must be long enough to reach the common rafters at the right place, and cut in the right way to fit; and if the learner can be induced to consider one end of a hip roof as consisting of four triangles whose bases are the plates of the building and whose apex is the point where they join the peak of the common rafters, and comprehend the fact that the length or shortness of the triangle is determined entirely by the pitch of the common rafter, he will have the key to the situation.

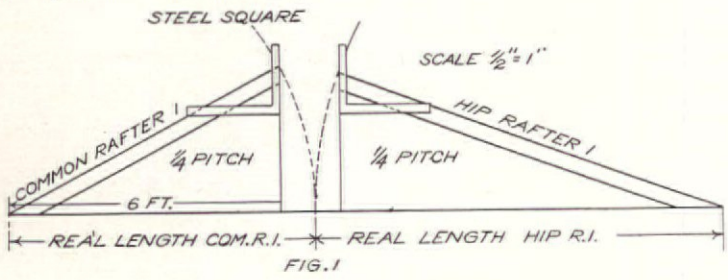


FIG. 1

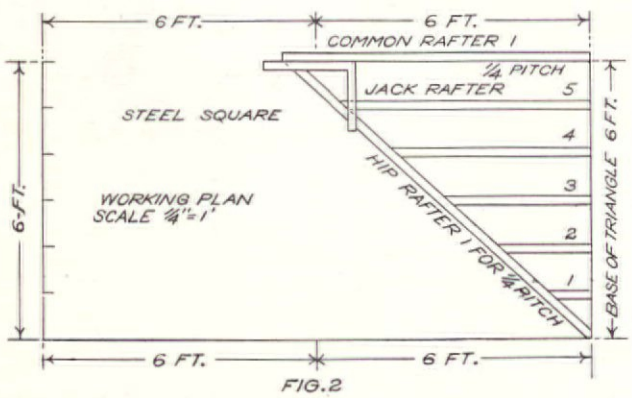


FIG. 2

I think it will be plain to anyone by the figures herewith shown, how to get the side cuts for both hips and jacks; also their lengths. They are just the same. This is to say, of course, that the side cut for the one-third pitch, for instance, is the same for that series of hips and jacks, while the plumb and bottom cuts for the jacks are the same as for the common rafters for one-third pitch.

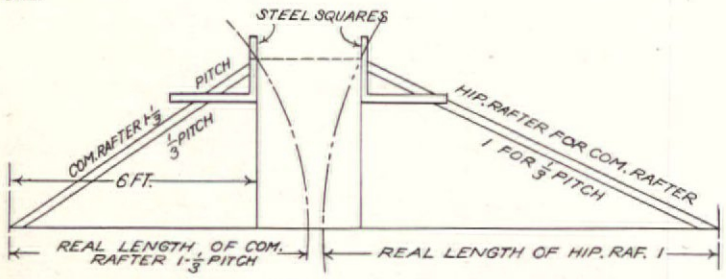


FIG. 3

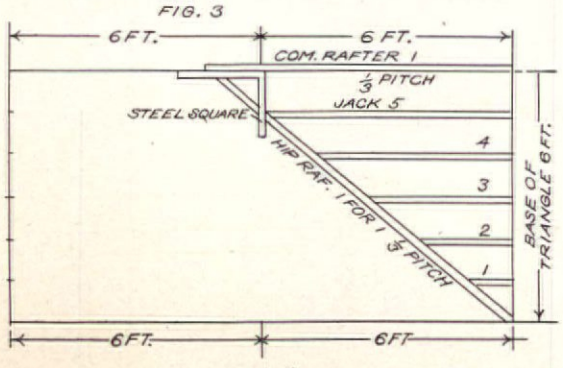
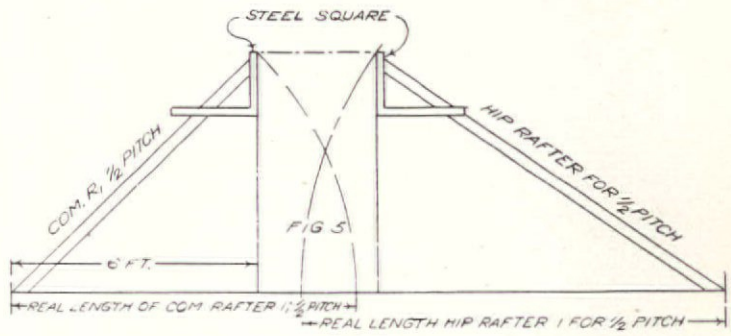


FIG. 4

Now, there are few practical facts about the square, which are very useful to know in connection with these problems. For instance, the cut for a quarter pitch is 6x12 for the common rafters. Now, as 12 is to the common rafter, so is 17 to the hip rafter, so long as the hip is square or regular. So then, as the cut for the common rafters for one-quarter pitch is 6x12, then the cut for the hip rafter is 6x17. Again, as the cut for one-third pitch is 8x12 for common rafters, the hip cut for same would be 8x17. Still again, as the cut for one-half pitch is, of course, 12x12, the hip cut for same is 12x17. But, Bulwer says, "We must first conjecture before we can experiment, and experiment before we can discover," so the novice will learn more by going to work than by any other means. None the less, others who have gone before have discovered many valuable facts and things which the beginner in any line will do well to avail himself of.



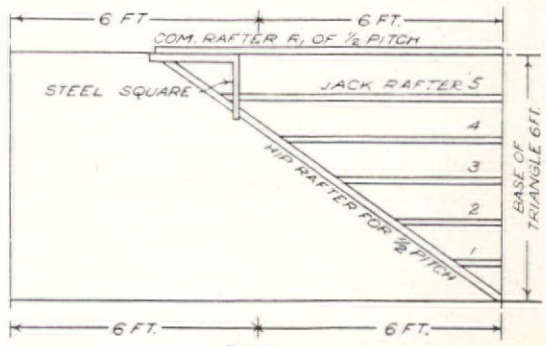
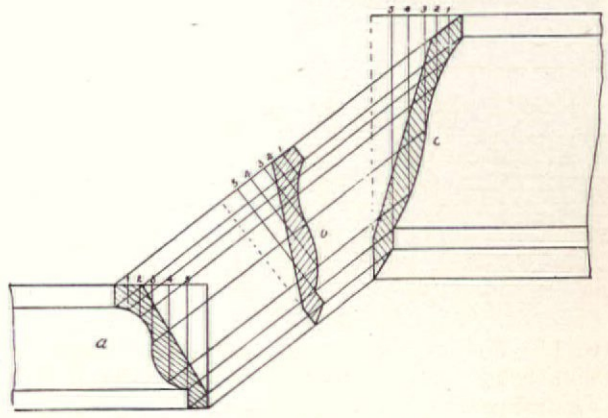


FIG 6

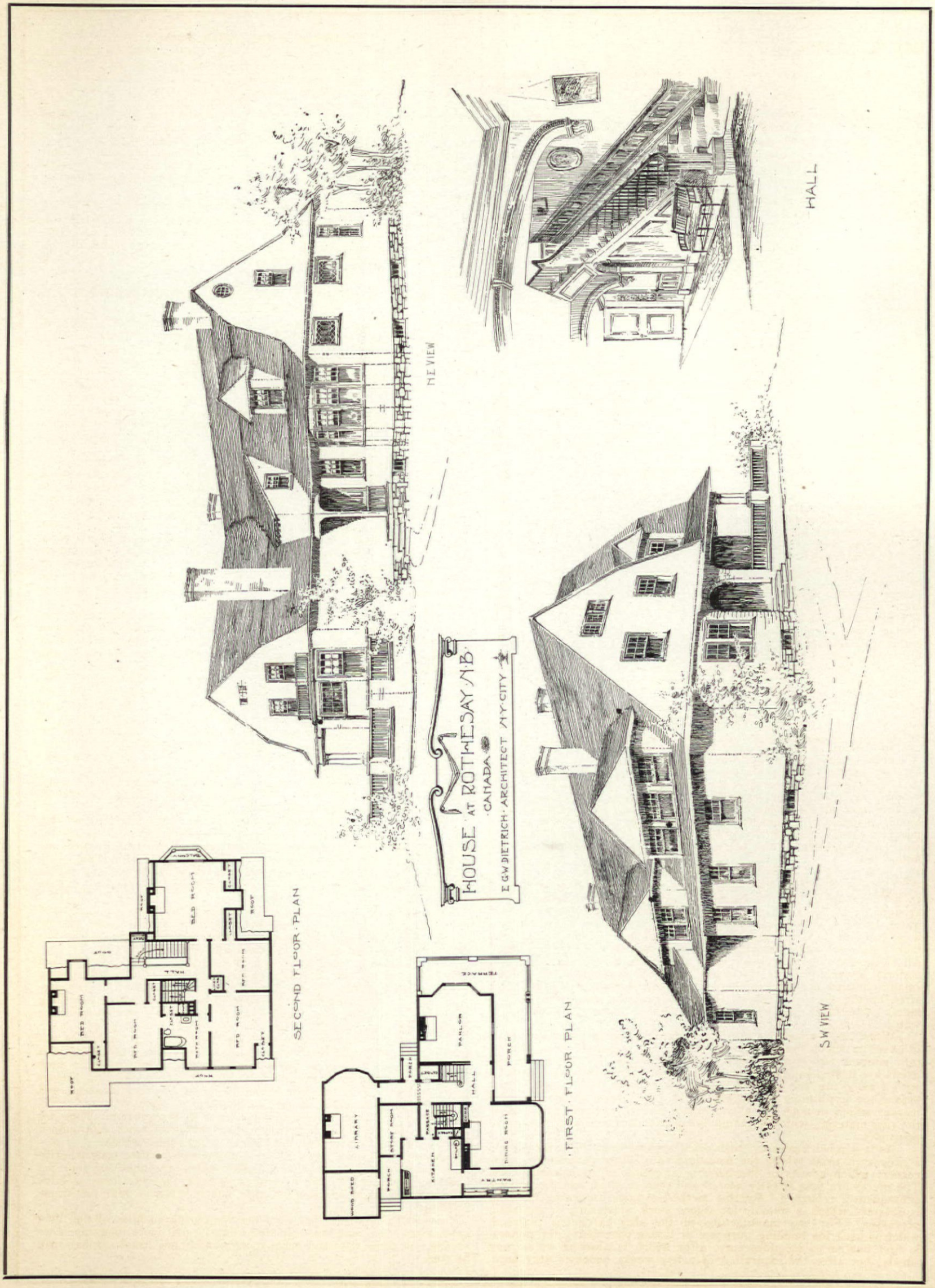
The steel square is shown in the "working plan" as laid across top of hip to give side cut for hip. Of course, this is also side cut for jacks. The horizontal view can hardly need explanation. The cuts can just as well be got with bevel rules, and for practical working, two bevel rules—one set for the side and the other for plumb cuts—are very handy, and I have found it very convenient to bolt two or more boards together upon which to draw the working plan, generally 1 in. to foot measure, and work the length for every piece. It is obviously necessary to draw only one-fourth of roof or one triangle, as shown in sketch.

If the operator will draw his plan and scale correctly, he will have but little measuring to do, and as for the square, he can lay that aside when he goes to frame his stuff, provided he has made his plan and can refer to it at a glance.

DEVELOPMENT OF A CIRCULAR MOLDING



Here is a bent sprung molding laid out to stand over the inside of a circle, and this time the development is made above the ceiling instead of below it. The reason for this is quite simple, although it is not always apparent at first thought. In the first example the top of the molding occupying the larger circle when in position must come on the long side of the blank, as shown at b o, while in the second case the top of the molding must necessarily conform to a smaller circle than the bottom and must be laid out on the shorter side of the blank, as shown at a b.


HALL
NE VIEW
HOUSE AT ROTHESAY N.B.
CANADA
E.G.W. DIETRICH · ARCHITECT · NY · CITY
SW VIEW
SECOND FLOOR · PLAN
FIRST · FLOOR · PLAN
BED ROOM
HALL
LIBRARY
PARLOR
PORCH
DINING ROOM
KITCHEN
PANTRY
TERRACE

BOOK NOTICES

(Notice.—All books noticed in these columns may be obtained from this office at Publisher's prices. All postage or express prepaid. Money and address must accompany all orders.)

ALADDIN HOUSES.—"Direct from the forest to the home"—"Houses built in a day." An illustrated pamphlet published by the North American Construction Company, Bay City, Michigan.

This is a "lively" little pamphlet, showing some 150 plans, elevations, interiors, and detail illustrations of "knock-down" summer cottages and bungalows, varying in cost from $185.00 to $1,750.00. The prices named are for houses complete and ready to occupy, including all materials, painting and plastering. These prices are often less than the cost of the rough material.

MAPLE, BEECH AND BIRCH FLOORING.—Being the official maple flooring book containing concise and authentic information for architects and builders concerning the characteristics and uses of maple, beech and birch flooring. This is a handsomely gotten-up little brochure, well illustrated with colored pictures of various trees in their natural homes and conditions. It is published by The Maple Flooring Manufacturers' Association, 1308 Rector Building, Chicago.

CONCRETE REFERENCE BOOKS: Practical Silo Construction—Number 3 of the Series; being a treatise illustrating and explaining the simplest and easiest practical methods of constructing Silos of all types; with unpatented forms and molds. The data, information and working drawings given in this book should enable the concrete worker to successfully construct any of the most practical types of concrete Silos in use at the present time. 70 pp., limp cover, a score of practical illustrations, published by the Norman W. Henly Publishing Company, New York, N. Y., 122 Nassau St. Price, Postpaid, 50 cents.

The work is by A. A. Houghton, the well known writer on matters of cement and concrete.

This series of reference books are all terse and simple on the subjects which they discuss, and cannot fail of being mighty useful to all those who are in any way engaged in cement and concrete work of any kind, and who may be fortunate enough to own all, or one of them, as they are practical, up-to-date, and presented in simple and understandable English.

The series consist ot twelve numbers, two of which were noticed in these columns a few months ago. The numbers now issued, and before me as I write, are No. 1, Concrete Wall Forms; No. 2, Concrete Floors and Side-walks; No. 3, Practical Silo Construction; No. 4, Molding Concrete Chimneys, Slate Roof Tiles; No. 5, Molding and Curing Ornamental Concrete; No. 6, Concrete Monuments Mausoleums and Burial Vaults. The serials are all uniform in size, well illustrated, well printed on good paper, in good sized type; and will be sent to any address in the United States or Canada postpaid on receipt of price, either from the publisher's office, or from the office of this paper.

THE GYPSUM INDUSTRY.

[From Consul General Robert P. Skinner, Hamburg, Germany, together with data from advance chapters of United States Geological Survey publications.]

Pure gypsum is a hydrous lime sulphate having a chemical formula $CaSO_4.2H_2O$. Few deposits of rock gypsum large enough to be worked for plaster are, however, even approximately as pure as this. Gypsum, as excavated for a plaster plant, will usually carry varying and often high percentages of such impurities as clay, limestone, magnesian limestone, iron oxide, and silica. Where the material occurs in an earthy, granular condition, it is known as gypsite, and this form of the mineral may carry 10 to 20 per cent of impurities.

Process of Preparation.

Gypsum loses the chief part of its content of water when heated to 110° or 120° C., and is completely dried when the temperature is brought up to 170°. The burned gypsum, not entirely relieved of its water, hardens when mixed with water, the peculiarity which renders it so valuable. When the burning process is continued until less than 3 per cent water remains it is known as "dead-burned gypsum." All of the burning processes require a completely even heating of the material, especially if the pieces are large and of unequal size. When small quantities are being prepared they may be burned in iron ovens, after having been pulverized, this heating being continued until a metal plate held over the ovens no longer accumulates drops of water.

When large quantities are being prepared, the gypsum is burned in ovens in which the gases from the fire are prevented from coming into contact with the material. To obtain the finer products, the ovens are heated indirectly, or the necessary temperature is obtained with a wood fire, the ashes of which are removed, as in a bake oven, before the gypsum is put in place. Modern ovens are now on the market which provide for a convenient and economical handling of the raw material, which is manipulated in accordance with the above principles.

As it is much easier to crush dried gypsum than the natural rock, a process is used, where the manufacture of large quantities is concerned, which admits of the burning of pieces of considerable size. The pieces are first slightly heated and then crushed, and the powder subsequently reburned. By this method a quick-hardening material is obtained which is suitable for stucco work, plastering, or modeling processes. For the manufacture of the slow-hardening material, which is used for building purposes or laying pavements, the mineral is first heated to incandescence, after which it absorbs water very slowly, but after the expiration of a few weeks becomes very hard.

Production in the United States.

The quantity of gypsum mined in the United States in 1909 was 2,252,785 short tons, an increase of nearly 31 per cent over the production of 1908, which was 1,721,829 short tons, and an increase of more than 28 per cent over that of 1907, which was 1,751,748 short tons. The gypsum sold without calcining and used principally as land plaster and as an ingredient in Portland cement and in paint showed a large increase in quantity but a loss of about 11 cents per ton in value; but the material calcined for plaster showed both a large increase in quantity and an increase of 30 cents per ton in selling price at the mills. The total value of gypsum and gypsum products in 1909 was $5,906,738, as compared with $4,075,824, an increase of $1,830,914, or 44.9 per cent.

Exports and Imports of Gypsum in Germany.

The gypsum exported from Germany amounts to nine times the quantity imported. Of the imports, one-half is from France and consists of very special grades. The price realized on gypsum shipped into Germany will depend wholly upon the quality of the article offered.

THE MOST DIFFICULT BUILDING REQUIREMENTS TO MEET.

EVERY man that has been in the building and contracting business long, probably feels that he has been up against some pretty severe restrictions and specifications at times, and up against some requirements that were pretty hard to meet. Some have found it in connection with requirements for fireproofing, others have found it in the exact government specifications, some in one way, and some in another, but when it comes to a show-down, it is doubtful if any builder in the United States has ever been up against what is really the hardest requirements to meet in erecting a building. That may sound like drawing it pretty strong, but what would you say if you were required to put up a building proof against earthquakes, tornados, and fire?

That is what they have to contend with down in the Island of Martinique, where, it will be recalled by many, there were some disastrous earthquakes and volcanic eruptions a few years ago, and where there is ever recurrent disasters due to earthquakes, hurricanes, and volcanic eruptions. There has been trouble ever since the country was settled by the first French colony, and the one idea all the time has been to construct an edifice to withstand the hurricanes and earthquakes, and be as nearly fireproof as it can be made. They have tried a great many experiments down there, and now, according to a report from Consul Thomas R. Wallace, they have found the plan that is in pretty general use at the present day to be about the best thing along this line that it is practical to construct.

Here is how they do it: The buildings in the cities are mostly two stories with dormer windows in the attic, but no cellars. Wood frame construction is resorted to, that is, a sort of mill construction in which some fairly heavy framing is used, and it is very carefully and thoroughly braced and trussed. The corner posts are bolted to the sills and joists, with iron bars and rods, and virtually two sets of framing are put up for the lower floor. The spaces between the studdings on the first floor are filled in with stone and mortar, making a wall about 20 inches thick, which is faced on the inside with boards attached to a framework of wood. In other words, it is practically the same as if one should put up a very substantial false work to carry a concrete wall 20 or 24 inches thick, with the framework on the inside of the wall, and the boards making the outside and just leave it stand. Only, instead of regulation concrete, they seem to use merely stones and mortar to get weight and body, but they still want the wood and its bracing and bolting together to withstand the shock of earthquakes.

In other words, a stone or concrete or other hard material building, while it may stand hurricanes and be more nearly fireproof, it seems that it is more liable to damage through eruption and earthquakes than one in which there is a reinforcing frame of timber to hold it together.

The upper stories are constructed with what seems to be a double set of studding or extra heavy framing without any stone or mortar filling.

The walls are 10 or 12 inches thick and the studding is simply dressed and planed and not ceiled on the inside. There are iron bolts passing through the studding in the outer wall and big iron washers on the outside to hold the wall and the frame together firmly.

For the flooring inch stock is used generally in wide units dressed both sides and matched. The floor of the second story forming the ceiling of the lower story like the old pioneer houses in this country. The partitions are made of practically the same stock, but instead of extending clear up to the ceiling, they stop about 1½ feet short of it and the space is filled with an iron trellis to permit a free circulation of air.

There is very little window glass used, naturally, for hurricanes and earthquakes continually break it out. Doors and shutters are made with movable slats, of the type we know here as outside blinds, and often there are additional outside doors, like our stormdoors, to close up for security at night. It is the slats in the doors and shutters, however, that are depended upon during the day for both air and light.

The country houses are generally lighter in construction. They are made one story of frame surrounded by a veranda or porch with quite a lot of iron used for support and railings around the verandas.

Strange as it may seem, tiling is the general roofing material with them. It seems odd, too, where lumber enters so extensively into the building operations, for we generally associate tile with stone or brick buildings and wood shingles or other lighter material with the frame buildings.

Evidently, however, they need the fireproofing qualities of the tiling down there. Anyway, it is said that tiling is used more than any other roofing, but some slate and metal roofing and a few metal cornices may be seen.

BUILDING TRADES INTERESTS IN THE COURTS

A materialman has no lien for glass broken before any attempt to use it in the building, and the owner of the building cannot be held for the loss.—Pittsburg Plate Glass Co. v. Leary, v. 126 N. W. (S. D.) 271.

Under the provisions of the mechanics' lien law the "owner" of real estate on whose interest a mechanic's lien will attach is the person for whose immediate use and benefit the building, erection, or improvement is made.—Johnson v. Soliday, 126 N. W. (N. D.), 99.

While an employer may employ contractors to do the work which the law requires of him, he cannot delegate to them the exercise of that care which the law imposes upon him personally.—Winslow v. Commercial Building Co,, 126 N. W. (Iowa) 173.

A mechanic's lien will not attach to the interest of a vendor under an executory contract of sale whose vendee is in possession, and who makes improvements by erecting buildings on the real estate covered by such executory contract.—Johnson v. Soliday, 126 N. W. (N. D.) 99.

Where the obligation of a building contract survived the contractor and was binding on his estate, his surety in a bond conditioned on the performance of the contract was bound to the performance of the contract after the death of the contractor.—MacDonald v. O'Shea, 108 P. (Wash.) 496.

Where the employment of a superintendent for the construction of a building was necessary in view of the character and size of the building, the administrator of the contractor could employ a superintendent, and the surety of the contractor was liable therefor.—MacDonald v. O'Shea, 108 P. (Wash.) 436.

A building contract stipulating for the certificate of the architect as to whether breaches of contract have occurred, or whether payments are due under it, requires the party seeking damages for a breach embraced in the stipulation to allege and prove that a certificate was given.—Heidbrink v. Schaffner, 127 S. W. (Mo.) 418.

A contract for the erection of a building on sloping ground, higher in the front than in the rear, which stipulates that the foundation wall shall be four feet below the ground, is not complied with where the foundation in the rear is placed on the surface of the ground, and the contractor, by filling increases the level of the ground two feet above the bottom of the foundation.—Villhauer v. Gross, 122 N. Y. S. 520.

A building contract stipulating that the parties for themselves, their heirs, executors, administrators, and assigns agree to the performance thereof is binding on the administrator of the contractor; it not being contemplated that the building should be the product of the contractor's personal labor or skill either as a laborer, mechanic, or artist.—MacDonald v. O'Shea, 108 P. (Wash.) 436.

A surety on the bond of a building contractor, conditioned for the performance of the contract, stipulating that the contractor shall protect the property against liens, may pay lienable claims before the expiration of the time for filing the liens without waiting for the filing of the liens, and hold the contractor or his estate liable therefore.—MacDonald v. O'Shea, 108 P. (Wash.) 436.

Where the vendee in an executory contract for the purchase of real estate is in possession and erects buildings thereon, in which the vendor has no interest except by reason of his holding the legal title as security for the purchase price, and when such vendor is not a party to the purchase of the material or the construction of the improvements, the question of his knowledge of or consent to the furnishing of material or the making of the improvements is immaterial.—Johnson v. Soliday, 126 N. W. (N. D.) 99.

A contractor, in a building contract which stipulated that the owner on obtaining a certificate of the architect might terminate the contract and complete the work, and that the expense incurred by the owner should be audited by the architect, whose certificate should be conclusive, gave a bond conditioned on his performance of the contract. He abandoned the work, and the owner completed it and sued on the bond for the cost of completing the work. Held, that the owner need not allege and prove that the certificate had been given as to the expense of completing the work.—Heidbrink v. Schaffner, 127 S. W. (Mo.) 418.

A building contract, providing that the owner on a certificate by the architect of the contractor's failure to perform any of the agreements may, on three days' notice, terminate the contract and complete the work, and that the expense incurred by the owner shall be certified by the architect, whose certificate shall be conclusive, does not provide against the contingency of abandonment of the work by the contractor, and where the contractor abandons the work the owner may complete it without obtaining the architect's certificate; the word "agreements" being synonymous with the word "stipulations."—Heidbrink v. Schaffner, 127 S. W. (Mo.) 418.

In proceedings to enforce a mechanic's lien for installing the plumbing and part of the heating apparatus in a building, the contract relied on consisted of the plans and specifications, the written bids, and the oral acceptance. The plans and specifications provided that the contract, when awarded, would be for a perfect job, even though every item required to make it such was not specially noted in the drawings or these specifications, and that the contractor should furnish all labor, tools, and appliances necessary to complete his work according to these specifications and perform the work in a true, workmanlike manner in every particular so as to provide the building with a durable and mechanically perfect system. Held, that the contractor was only required to prove substantial compliance with the plans and specifications in order to be entitled to a lien, and he cannot be held responsible for any fault in architecture, but only for faulty workmanship or material, or failure to comply with the plans. —Ruddy v. McDonald, 91 N. E. (Ill.) 651.

The mere delivery of material by a subcontractor to a contractor at the latter's place of business, the latter never incorporating it in the structure for which it was bought, or even delivering it on the premises or to the control of the owner of such structure, is not a "furnishing" of the material for, in, or about the construction of the improvement, within St. 1898, §3315, giving the subcontractor a lien for materials so furnished; the intent in that respect being shown by the concluding sentence, imposing penalty on a principal contractor, who without consent of and with intent to defraud a subcontractor uses, or causes to be used, material for an improvement other than that for which it was represented to be bought.—Francis & Nygren Foundry Co. v. King Knob Coal Co., 126 N. W. (Wis.) 39.

PATENTS.

The following list of recent patents and trademarks relating to building interests is especially reported for THE NATIONAL BUILDER by Wm. G. Henderson, solicitor of American and foreign patents and trademarks, Norris building, 501 F street, Washington, D. C. A copy of any of the United States patents will be furnished by him for 25 cents.

991,416. Sash-fastener. J. H. Bobbitt, Holstein, Neb.

991,371. Door check and closer. Jos. C. Reganassor, The Yale & Towne Mfg. Co., Stamford, Conn.

991,941. Chimney-top. Fred L. J. Boettcher, Washington, D. C.

991,768. Fire-escape. G. Busat, San Francisco, Cal.

991,605. Fireproof shutter. R. E. Byrne, assor. ½ to J. R. Cameron, Ottawa, Ontario. Can.

991,971. Reinforced concrete construction. Secondo Giletti, San Francisco, Cal.

991,635. Mold for concrete walls. A. C. Nielson, Chicago, Ill,

991,890. Sliding-door lock. Chas. F. Ritchel, assor. G. E. Greenbaum, New York.

991,755. Adjustable concrete form. B. F. Selbert, Mansfield, O,

991,674. Door-step. H. G. Voight, assor. Russell & Erwin Mfg. Co., New Britain, Conn.

992,733. Concrete construction. J. E. Gonzelman, assor, Unit Construction Co., Wilmington, Del.

992,554. Locking mechanism for emergency-exit doors. Edw. A. Freed, assor. 1-3 to F. Lundin and 1-3 to C. J. Forsberg, Chicago, Ill.

992,257. Fire-escape. D. J. Roche, Chicago, Ill.

993,227. Cellar door hinge. Jos. DeRose, Paterson, N. J.

992,760. Window screen. Chas. F. Dudley, Reading, Mass.

992,781. Door-operating device. Theo. P. Lallance, Huntington, W. Va.

992,812. Fire-proof door. Thos. P. Shean, Chicago, Ill.

992,996. Door-check. A. Stephan, Point Mills, Mich.

993,127. Wall construction. Robt. Tinsley, assor. The Pullman Co., Chicago, Ill.

PACIFIC COAST LUMBER MANUFACTURERS TAKE INITIATIVE IN TIMBER CONSERVATION.

The Pacific Coast lumber manufacturers have taken the initiative in an important step for the promotion of proper and conservative use of their timber supply. Practically all of the large manufacturers of lumber in the states of Oregon and Washington have entered into an agreement to manufacture odd, as well as even lengths in flooring, finish, and similar planing mill products. Heretofore, it has been customary to manufacture these products in even lengths only. Now, it is proposed to trim the manufactured lumber to lengths of odd numbers as well as even numbers of feet. Under the old system, a considerable portion of the lumber which came to the shaping machine was wasted and this action has been taken in order to save that waste.

Considerable opposition to this innovation has arisen among retailers and consumers. The retailer contends that it is impossible for him to dispose of odd-length material because of the common practice in the construction of wooden buildings, claiming that the initial saving of the manufacturer is transferred to the consumer. This is denied, however, because of the proportionally small amount of odd-length material which will occur under the new system, and because of the latter day practice of laying sub-floors of rough lumber and sheathing on the sides of the house before putting the finished material in place.

Because of the conservation element which enters into this question, the United States Forest Service has been recommending the adoption of odd lengths for some time past. The Portland office of the Service has recently made an investigation of the actual amount of unnecessary waste incident to the manufacture of even lengths only, and these figures show that under the old system the refuse burner consumed about two per cent of the total amount of the important forms of planing mill products which are manufactured from Douglas fir and other important forest species, in the states of Oregon and Washington.

When it is considered that about 750,000,000 feet of planing mill products are manufactured annually in the two states mentioned above, this two per cent assumes important proportions. The Forest Service is authority for the statement that 15,000,000 board feet of high-priced lumber can be saved annually in Oregon and Washington by the manufacture of planning mill products into lengths of odd feet as well as even. It would require the yearly growth of timber on approximately 30,000 acres of average timber land to produce the amount of lumber which this annual waste represents. The manufacturer is convinced that the waste is unnecessary. His greatest trouble now lies with a similar conviction on the part of the consumer, that odd lengths can be used as economically as even lengths.

BUILDING MATERIAL PRICE LIST

REVISED TO DATE

*—Price not given. yp—Yellow pine. wp—White pine. np—Norway pine. op—Oregon pine. rw—Redwood. s—Spruce oc—Ontario cedar. h—Hemlock. bc—British Columbia cedar. rc—Red cedar. F—Fir. Cdr—Common cedar. Cyp—Cypress. BM—Board measure. S 1 S—Sized one side. D 4 S—Dressed four sides. KD—Kiln dried. RG—Rough. C—Clears.

	Philadelphia, Pa. Corrected by N. E. Duffey.	Chicago, Corrected by J. H. Touchstone.	Los Angeles, California, by Courtesy of B. & O.	Omaha, Neb. Corrected by I. P. Hicks.	Southern Ontario. Corrected by F. C Frants.	Buffalo, N. Y. Corrected by J. W.	New York, N. Y.	Cleveland, Ohio. F. O. B. Yard Courtesy P. T. Co.	Seattle, Wash F.O.B. Mill or Yard Corrected by Courtesy F. T. Bradley
Dimensions, Hemlock Lumber	M ft. BM S 2 S	M. ft. BM S 2 S	M ft. BM R G	M ft. BM S 2 S	M t. BM S 2 S	M ft. BM S 2 S	M ft. BM Rough	M ft. BM S 2 S.	M ft. BM S 2 S
2"x4" to 8" up to 16', No. 1	h $23.00	yp $20.00	op $22.00 to 24.00	yp $27.00	h $24.00	h$22.00	yp. $30.00	yp $26.00	F $11 00
2"x4" to 8" up to 16', No. 2	23.00	16.00	21 00	25.00	22 00	20.00	*	24.00	9 00
2"x4" to 8" 18 & 20', No. 1	26.00	21.00	23 00	28.00	26 00	26.00	30.00	28.00	11 00
2"x10" up to 16', No. 1	24.00	21.00	24 00	29.00	24 00	22.00	34.00	27.00	11 00
2"x12" up to 16', No. 1	*	22.00	24 00	31.00	25.00	23.00	34.00	29.00	11 00
2"x14" up to 16', No. 1	*	24.00	25.00	*	26.00	25.00	38.00	35.00	12.00
Each 2 ft. over 20 ft., add per M	2.00	1.00	1 00	1.00	2.00	1.50	For Dressing 3.00	2.00	up to 32'1.00
Select stock as above, add per M	*	5.00	10.00	*	*	*		*	2.25
Exterior Finish, Etc.	M ft. BM D 4 S.	M ft. BM D 4 S.	M ft. BM D 4 S.	M ft. BM D 4 S.	M ft. BM D 4 S.	M ft. BM D 4 S.	M ft. BM D 4 S.	M ft. BM S 4 S.	M ft BM D 4 S
1"x3" to 1"x8", No. 1	e $48.00	yp $35.00	rw $35.00	yp $46.00	wp $35.00	wp $43.00	wp $45.00	wp $48.00	F $30 00
1"x10", No. 1	*	35 00	36.00	44.00	40.00	40 00	cyp 58.00	50.00	32 00
1"x12", No. 1	*	40.00	37.00	48.00	42.00	50 00		50.00	32 00
1¼"x3" to 1¼"x12", No. 1	60.0C	42.00	50.00	50.00	45 00	48.00		52.00	32 00
1½" and 2" same as above	60.00	42.00	52.00	50.00	42.00	52 00		55.00	32 00
1" drop siding, No. 1	53.00	25.00	26.00 to 30.00	32.00	35.00	35.00	wp 45.00	49.00	22 00
½" lap siding, No. 1	37.50	18.00	18.00 to 20.00	30.00	30.00	36.00	cdr 30.00	37.00	re 22 00
Enclosing and Fence Boards.	M ft BM S 1 S	M . BM S 1 S	M ft. BM D 2 S	M ft BM S 1 S	M t BM S 1 S	M t. BM S 1 S	M ft. BM S Rough	M ft. BM S 1 S.	M ft. BM S 1 S
1"x4" to 1"x8", No. 1	ape $40.00	yp $18.00	op $25.00 to 30.00	yp $25.00	wp $30 00	wp $35.00	s $32.50	wp $37.00	F $11 00
1 x8" to 1"x10" No. 1	50 00	18.00	25.00 to 30.00	24.00	h 24.00	h24.00	1x6 27.50	39.00	11 00
1"x10", No. 1	50.00	18.00	30.00 to 35.00	24.00	24.00	26.00	1x8 28.00	34.00	11 00
1"x10", No. 2	45.00	15.00	25.00 to 30.00	22.00	22 00	24.00	1x10 30.00	35.00	11 00
Interior Finish, Flooring, Ceiling, Etc.	M ft. BM D 4 S.	M t. BM D S.	M ft. BM D 4 S.	M ft. BM D 4 S.	M ft. BM D 4 S.	M ft. BM D 4 S.	M ft. BM. D 4 S.	M ft. BM D 4 S.	M ft. BM D 4 S.
⅛", T. & G. Flooring No. 1	yp $43.00	yp $30.00	op $40.00	yp $40.00	wp $40.00	yp $40.00	yp. $32.00	wp $35.00	$30 00
⅛", T. & G. Flooring No. 2	40.00	25.00	35.00	36.00	wp 30.00	35.00	26.00	30.00	25 00
Add for ceiling per M	*	1.00	1.50	2.00	1.00	1 00	wc 9.00	2.00	M ft 22.00
Add for partition per M	*	2.00	2.50	2.00	2.00	2.00	wc 9.00	2.00	22.00
⅝"x4", Ceiling No. 1	*	25.00	27.50	30.00	np 30.00	30.00	wc 25.00	31.00	22.00
	100 ft. run	100 ft. run	100 ft run	100 ft run	100 ft run	100 ft run	Flooring	100 ft run	100 ft run
4¼" Moulded Casing	wp $3.00	yp $1.85	rw or op $3.00	yp $2.00	wp 2.00	vp 3¾ $2 00	yp No. 1 $32.00	wp $3.00	$2.75
4¾" Moulded Casing	3.75	2.10	3.50	2.50	2.50	2.50	yp No. 2 26.00	3.25	2.75
7¼" Moulded Base	6.00	3.25	6.00	3.50	4.50	6¾ 4.00	Maple No. 1 52.00	4.20	3.50
⅞"x9¼" Moulded Base	7.50	3.75	8.00	4.00	6.00	¾x8¾ 5.00	" No. 2 46.00	6.00	4.50
1⅛"x4½" Moulded Window Stool	5.50	3.00	7.50	4.00	4.00	1⅛x3¾ 4.00	Oak No. 1 65.00	5.00	3.50
							Oak No. 2 52.00		
Miscellaneous List.	Per M.	Per M.	Per M	Per M	Per M	Per M	Per M	Per M.	Per M.
Shingles, No. 1	re $16.00	re $3.50	rw $2.75	$4.25	be re $3.75	$4.00	rc $5.75	re $4.75	re *A*c $2.00
Shingles, No. 2	13 00	3.00	2.00	3.75	*	3.50	cdr 4.00	4.25	*A*s 2 00
Shingles, fancy	18.00	5.00	rw 4.00	4.50	8.00	7.50	cyp 11.00	5.50	2 75
Lath, 4 ft., No. 1	6.00	yp 3.60	4.50	F 5.50	wp 5.00	h 4.00	4.25	5.25	F 1 75
Lath, 4 ft., No. 2	4.00	2.75	3.50	5.00	s 3.75	3.80	*	4.75	1 75
Pickets, 1"x3"x4' 6", dressed	h 40.00	40.00	25.00	30.00	*	wp42.00	*	wp 45.00	22 00
Pickets, 1 x3"x4' 6", rough	30.00	*	20.00	*	*	38.00	*	30.00	18 00
	Piece.	Piece.	Piece.	Piece	Piece.	Piece.	Piece.	Piece.	Per 100.
6"x8' Post split	*	Cdr $0.13	re $0.30	Cdr $0.30	*	$0.25	.28	Cdr $0.15	re $12.50
8"x8' Post split	*	.20	.40	.35	*	.30	.32	.22	12.50
8"x8' Post whole	*	.44	.50	.40	Cdr $0.30	.50	.50	.40	
6"x8' Post whole	*	.25	.40	.35	.25	.40	.45	.30	
Hardware List.	Cwt.	Cw	Cwt.	Cwt.	Cwt.	Cwt	Cwt.	Cwt.	Cwt.
Nails, wire, common	$2.25	$3.50	$3.00	$3.00	$2.85	$2 30	$2.25	$2.30	$2.95
Nails, cut, common	2.15	4.00	3.10	*	3.00	2.15	2.10	4.10	2.95
Nails, wire, fine finishing	2.45	1.60	3.50	3.50	4.00	3.50	2.50	2.20	2.95
Sash Weights, cast iron	1.50	1.50	1.60	1.50	2.25	1.60	New 1.50	1.60	1.75
							S. H. .90		
Tarred Felt Paper, best 2-ply	Roll $ .90	Roll. *	Roll *	Roll $1.00	Roll *	Roll .60	Roll $1.25	Roll $0.60	Cwt $5.00
Tarred Felt Paper, 3-ply	1.15	*	*	1.25	*	1.20	1000' 0.95	.80	Cwt. 5.00
Red Rosin, Atlas brand	1.60	.90	*	.90	$0.50	0.90	1000' 1.15	1.20	*
Red Rosin, durable brand	1.25	.75	*	.75	60	1 75	Per lb. .02¼	.90	*
Black Neponset	2.25		*	*	2 50	2.50	250 ft. 1.15	2.60	*
						Courtesy, Buffalo Bldr's Supply Co.			
Masons' Supplies.	Per M.	Per M.	Per M.	Per M.	Per M.	Per M	Per M.	Per M.	Per M.
Brick, blue, at kilns	*	*	$9.00	*	Hudson River	Not used	$6.50	*	*
Brick, blue, at kilns, No. 1	*	*	6.50	*	" "	" "	6.00	*	*
Brick, blue, at kilns, No. 2	*	7.50	6.00	*	New Jersey	" "	Pressed 22.00	*	*
Brick, white, delivered, face	30.00	7.00	*	7.50	*	7.25	" 25.00	$40.00	$45.00
Brick, red, delivered, backing	9.00	7.00	*	*	*	7.50	14.00	18.00	7 00
Brick, delivered, dry pressed	22.00	18.00	*	18.00	$17.00	18.00	25.00	22.00	35 00 to 45.00
Brick, vitrified, dry pressed	*	*	*	24.00	*	25.00	18.00	*	20.00
Lime, best gray	bu $0.27	bbl. $1.30	bbl. $1.80	bbl. $1.25	bbl. *	$ .80	bbl. $1.40	bu $0.27	bbl. $1.65
Lime, best white	.27	1.40	2.00	1.25	*	1.00	145 to 190 Atlas-	.27	1.85
Cement, Portland	bbl net 1.85	*	2.25	1.85	1 80	bbl. 1.50	1.50 pr bbl.in wood	bbl. net 1.60	Cwt. 2.25
Plaster, calcined	" " 1.90	2.40	2.25	1.80	bbl. 12 50	ton. 5.00	(In bags $1.80 per	ton 5.50	bbl. 2.50 to 2.65
Hair, 8 lb. per bush	.25	.25	0.48	.25	*	.32	bbl., 4 bags to bbl., with rebate of 7½ per bag.)	*	*
					Plaster (patent) $6 per ton. White Rock $11.00 per ton.				

NOTE—While these figures are approximately correct at the time of preparing, the continual fluctuations and shifting of prices make it necessary to advise our readers to consult local price lists when making up tenders.—ED.

MAXIMS BY MARK TWAIN

Noise proves nothing. Often a hen who has merely laid an egg cackles as if she had laid an asteroid.

Training is everything. The peach was once a bitter almond; cauliflower is nothing but a cabbage with a college education.

Habit is habit, and not to be flung out of the window by any man but coaxed downstairs a step at a time.

One of the most striking differences between a cat and a lie is that a cat has only nine lives.

The autocrat of Russia possesses more power than any other man on the earth; but he cannot stop a sneeze.

When I reflect upon the number of disagreeable people who I know have gone to a better world I am moved to lead a different life.

The true southern watermelon is a boon apart, and not to be mentioned with commoner things. It is chief of this world's luxuries, king by the grace of God over all the fruits of the earth. When one has tasted it he knows what the angels eat. It was not a southern watermelon that Eve took; we know it because she repented.

Be good and you will be lonesome.

Few good thinks are harder to put up with than the annoyance of a good example. It were not best that we should all think alike; it is difference of opinion that makes horses race.

Even the clearest and most perfect circumstantial evidence is likely to be at fault, after all, and therefore ought to be received with great caution. Take the case of any pencil sharpened by any woman; if you have witnesses you will find she did it with a knife, but if you take simply the aspect of the pencil you will say she did it with her teeth.

April 1. This is the day upon which we are reminded of what we are on the other three hundred and sixty-four.

The English are mentioned in the Bible: Blessed are the meek, for they shall inherit the earth.

Adam and Eve had many adventures, but the principal one was that they escaped teething.

There is this trouble about special providence—namely, there is so often a doubt as to which party was intended to be the beneficiary. In the case of the children, the bears and the prophet, the bears got more real satisfaction out of the episode than the prophet did, because they got the children.

There is no character, howsoever good and fine, but it can be destroyed by ridicule, howsoever poor and witless. Observe the ass, for instance; his character is about perfect; he is the choicest spirit among all the humbler animals, yet see what ridicule has brought him to. Instead of feeling complimented when we are called an ass we are left in doubt.

Consider well the proportions of things. It is better to be a young June-bug than an old bird of paradise.

Why is it that we rejoice at a birth and grieve at a funeral? It is because we are not the person involved.

All say, "How hard it is that we have to die"—a strange complaint to come from the mouths of people who have to live.

It is easy to find fault if one has that disposition. There was once a man who, not being able to find any other fault with his coal, complained that there were too many prehistoric toads in it.

When angry, count four; when very angry, swear.

The holy passion of friendship is of so sweet and steady and loyal and enduring a nature that it will last through a lifetime if not asked to lend money.

"Classic." A book which people praise and don't read.

The man with a new idea is a crank until the idea succeeds.

For two long hours he worked away
And shoveled to the street—
That night when he was fast asleep
It snowed about two feet!

Next morn, to get them clean once more,
He worked with might and main.
Came from the roof an avalanche
And filled them up again!

When ordered by the stern police,
Grim guardians of the law,
He shoveled out those walks once more—
And it began to thaw!

—Puck.

ATLAS OAK FLOORING.



Not so many years ago very few contractors and builders paid much attention to finding out who were the manufacturers of the building materials they were specifying and buying. Anything that the dealer gave them in those days was accepted, and if anything went wrong the matter had to be adjusted with the dealer, and he had to take it up with the manufacturer. The contractor and builder of today insists on knowing who the manufacturer is, of all the materials he is buying. Where materials are trade marked, it gives the contractor and builder more confidence in them, because it is an easy matter to take up any complaint on any material direct with the manufacturer. Builders have learned that manufacturers who trade mark their goods and materials have to stand back of that trade mark and give the right quality.

The "ATLAS" oak flooring is a trade marked material. Every piece of "ATLAS" flooring is stamped with the word "ATLAS." The manufacturers stand back of this trade mark, and architects and contractors in specifying and buying it know that "ATLAS" must be right in every respect.

Many local lumber dealers are handling and carrying in stock "ATLAS" oak flooring, but where a dealer will not supply the demand and insists upon substituting some other flooring the manufacturers of "ATLAS" will see that the contractor who wants their flooring can get it direct.

All "ATLAS" 13-16 flooring is thoroughly kiln dried, dressed, and matched, hollow back, bored, end matched, steel polished and wire bundled. All "ATLAS" ⅜ flooring is thoroughly kiln dried dressed and matched, end matched, steel polished and wire bundled. In addition to wire bundling "ATLAS" ⅜ flooring the manufacturers also pack it in crates when desired at an additional cost of only $1.50 per 1,000 feet. This insures shipments being received in unusually fine and clean condition and is well worth the small additional cost.

"ATLAS" oak flooring is manufactured by the Wildberg Lumber Company, Ninth and Eggleston Avenues, Cincinnati, Ohio. They will be glad to give full particulars to architects, contractors and builders about "ATLAS" oak flooring.

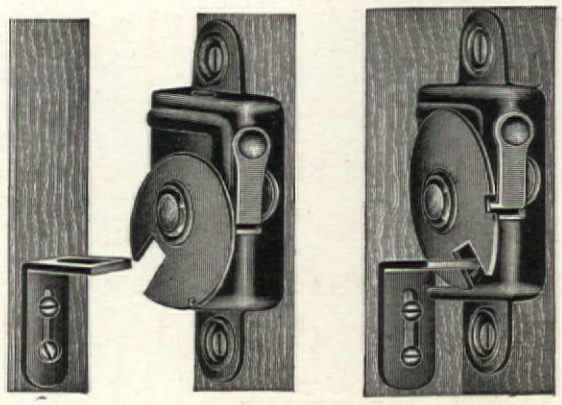
WATROUS AUTOMATIC SCREEN DOOR CATCH.

The E. L. Watrous Manufacturing Company, of Des Moines, Iowa, has lately put upon the market a new Automatic Screen Door Catch, known as the No. 21. The Catch has a lot of good points, which they claim make it superior to any other on the market. Those which they most desire to emphasize are:

1st. The ease with which it can be set, as it comes flush on the door and needs no templet or diagram, which appeals to carpenters, as they do not like to "fuss" with a small piece of hardware, and have to make several trials before they get it on straight.

2d. The POSITIVE LOCK is an extremely desirable feature, making a secondary fastener unnecessary. Though they offer the Catch both with and without the lock, the overwhelming majority of their sales has been made on the Catch with the Positive Lock.

3d. They have retained on this Catch the adjustable strike,



which they found to be such a winner on their $5 Catch, and have made the metal nearly twice as heavy, so that this Catch is really a lock that will stand a great deal of abuse before it can be broken. No mere accident will put it out of commission, but anyone trying to break in would find it easier to break the door than to break this lock.

4th. It is good workmanship throughout, and it "looks like the Money." You will find no rough or split corners. They have introduced a special new embossing so that the cam cannot drag over to one side and bind, and altogether, it is a good piece of shelf hardware.

NEW SALES HEADQUARTERS.

J. A. Fay & Egan Co., the woodworking machinery people, announce the discontinuance of their Greensboro, N. C., agency. The Chattanooga, Tenn., office has also been discontinued and a new suite of offices opened in the Candler Building, Atlanta, Ga. The new Atlanta office will handle all business in the states of North & South Carolina, Tennessee, Georgia, Florida and Alabama (outside of Mobile). This merger was made in order that the business of J. A. Fay & Egan Co. might be done direct with the customer, insuring prompt and careful attention to each individual.

The NORTHWESTERN TERRA COTTA COMPANY

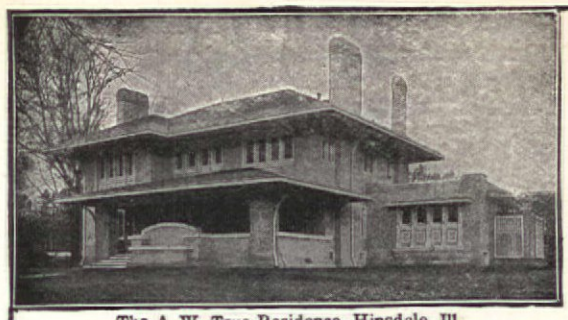
Manufacturers of High Grade

Architectural Terra Cotta

Enameled Work a Specialty

Main Office and Works, 2525 Clybourn Ave.
Branch Office, Room 1415 Railway Exchange

CHICAGO, ILLINOIS



The A. W. True Residence, Hinsdale, Ill.

143 Cities USED "Stonekote" ROUGH CAST in 1910

Before you build or repair the old home have your architect write us for book telling of "Stonekote" Portland Exterior. What color would you like a sample to be: Gray, Silver Gray, White, Buff, Red, Brown.

THE GARDEN CITY SAND COMPANY
MANUFACTURERS
709-11 Chamber of Commerce, CHICAGO, ILL.

HESS MEDICINE SANITARY CABINET LOCKER

The Only Modern, Sanitary STEEL Medicine Cabinet



The Recessed Steel Medicine Cabinet

or locker, finished in snow-white, baked everlasting enamel, inside and out. Beautiful beveled mirror door. Nickel plate brass trimming. Steel or glass shelves.

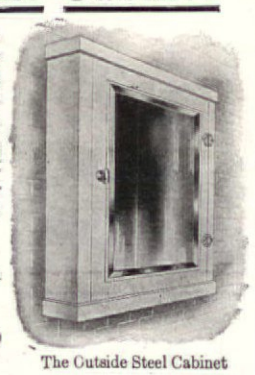
Costs Less Than Wood

Never warps, shrinks, nor swells. Dust and vermin proof, easily cleaned.

Should Be in Every Bath Room

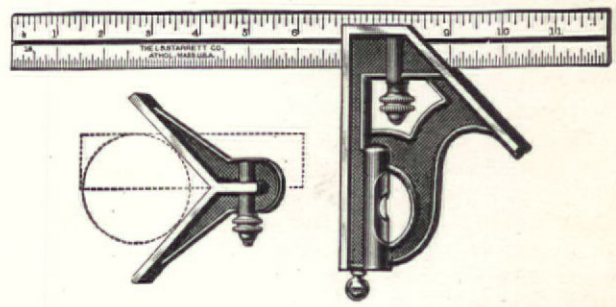
Four styles—four sizes. To recess in wall or to hang outside.

Send for illustrated circular



The Outside Steel Cabinet

HESS, 907 L Tacoma Bldg., CHICAGO
Makers of Steel Furnaces. *Free Booklet.*



STARRETT TOOLS for Carpenters are made with just the same superiority in respect to accuracy, workmanship, design and finish as Starrett Tools for Machinists. And that's saying a good deal.

Complete Catalogue No. 18-M sent free

THE L. S. STARRETT CO., Athol, Mass., U. S. A.

ASBESTOS "CENTURY" SHINGLES

"THE ROOF THAT OUTLIVES THE BUILDING"

Look into the service record of Asbestos "Century" Shingles for yourself. You'll find that you can depend absolutely on their integrity.

They give the client a roof that needs no repairing or painting—no expense bills that arouse his ill-will and make him question the value of every other feature of the building.

Asbestos "Century" Shingles are the first practical lightweight roofing of reinforced concrete—made of hydraulic cement reinforced with interlacing asbestos fibres.



Asbestos "Century" Shingle Roof—Residence of Dr. Thomas H. Bowman, Harrisburg, Pa.; Harry B. Shoop, Harrisburg, Architect; James M. Bowman, Harrisburg, Contractor.

These shingles are weatherproof, fireproof, timeproof. Cannot rot, rust, crack, split or blister. They literally outlive the building—without repairs or painting.

You can get Asbestos "Century" Shingles in shapes and sizes to fit any architectural scheme. Three colors—Newport Gray (silver gray), Slate (blue black), and Indian Red. Ask your Roofer for new quotations. Write for booklet "K. & M. 1911."

The Keasbey & Mattison Company, Factors, Ambler, Pennsylvania

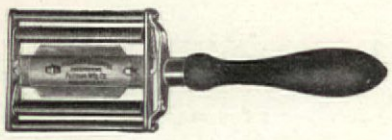
PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

THE PULLMAN RAZOR STROPPER.

Were you ever shaved by a barber? Of course you were—and did you notice how he reached for his strop before he began to shave—once or twice while shaving you, and again before he laid his trusty razor down? Has it a poor edge to need so much stropping? No, it was the best he could buy, but it is necessary to strop the best razor frequently to keep it in shape.

You have a safety razor? Of course, almost every one has. But how about stropping? Do you use one blade three or four times, while the barber strops his a dozen, and then puts in a new blade—then get a dozen sharpened at once or buy new ones?

Why don't you give your safety razor as good treatment as the best common razor? Strop it at least before using, and just after.



You will be surprised at the result. But in order to strop the blade properly you must have a strop different from the old style.

The Pullman Mfg. Co., Rochester, N. Y., are placing on the market a new style of safety blade stropper, which permits the rapid sharpening of the blades. It consists of a handle having at the end a number of rollers through which the strop passes. The blade is clamped to a central bar, which is so adjusted as to hold the blade against the strop at the correct angle. The action of the strop automatically reverses the blade so there is no possibiliy of cutting the strop. The device is small, neat and compact and should last a lifetime. Every owner of a safety razor should have one.

CONCRETE ORNAMENTAL MOULDS.

Never before in the history of concrete work has the use of concrete been so great for ornamental purposes as at the present time. There seems to be no limit to the possibilities in this line and concrete lends itself so readily to the manufacture of concrete articles that it proves most attractive and a very interesting line of work.

There is a satisfaction about turning out a handsome piece of work that appeals to every concrete worker, and the immense profits in this line are also very satisfactory.

You can make a vase similar to the following illustration with about one sack of cement. This vase would sell for not less than $5.00 and every housewife wants a pair of these as soon as she sees them. This illustration shows one of the most attractive and beautiful lawn vases on the market at the present time. It is sold by the Northwestern Steel & Iron Works of Eau Claire, Wis., who are extensive manufacturers of concrete machinery of every description and their catalogue shows the largest line of ornamental moulds made.



It will pay contractors to have a copy of this book if for nothing else than for reference. It describes everything shown in the concrete machinery line and gives valuable information of every description.

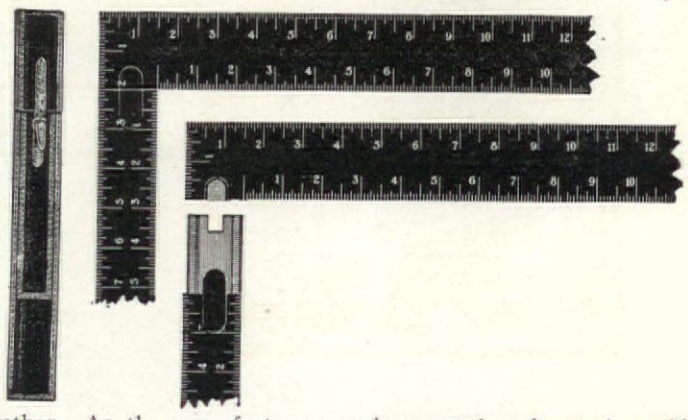
All moulds for ornamental purposes are made in four sections and are hinged so as to draw easily from the finished mould. The designs are clear cut and attractive in appearance and every contractor will do well to consider the establishment of an ornamental department in connection with their regular business.

Every article produced will prove an advertisement for their work and every live, up-to-date concrete man realizes that they cannot do business without advertising. There are a hundred and one different ways in which articles of this kind tend to bring added sales to their business, and will increase their profits to a large extent, and put their business on a more satisfactory and profitable basis.

THE NICHOLLS TAKE DOWN SQUARE.

The Nicholls Manufacturing Co., of Ottawa, Iowa, have recently placed on the market a new form of Take Down square, which possesses marked advantages over other forms now in use. In this square, the tongue separates entirely from the blade, so that there is no projection on the blade beyond the inside edge. This allows the square to be packed in a much smaller space, in fact, being only 2 inches by 24 inches. In putting together there are no screws or cams to adjust or come loose, but the tongue automatically locks securely into the blade without the use of any tools whatever.

One of the features claimed for this square is that it will always remain true, as the construction is such that the wear, occasioned by frequent taking apart, causes the two pieces to be more firmly held

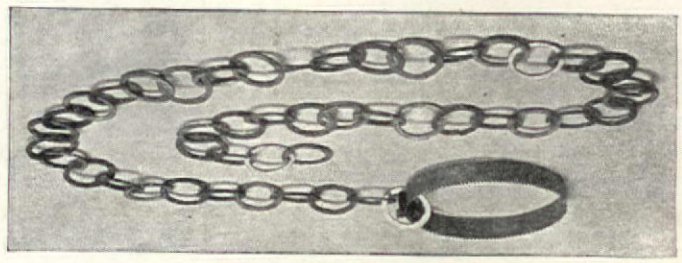


together. As the manufacturers make several styles and markings, this square can be obtained in the Nos. 3 and 100 Standard and No. 100 Rafter Framing in Oxidized Copper Black (white or yellow figures) Galvanized, Old Copper and Nickel Plated.

It will be noted that the No. 100 Rafter Framing Square has engraved on it the famous Nicholls Rafter Framing Rule, giving the cuts and lengths for common, hip, valley and jack rafters for seventeen different pitches. For those not familiar with this marking the Nicholls Manufacturing Company, Ottumwa, Iowa, offer to send a direction sheet describing their framing rule, as well as any other information regarding their famous squares.

FLEXIBLE HACK SAW BLADE.

This is not an illustration of a Dog Collar and Chain, but rather it shows the work of a Culley Flexible Hack Saw Blade, manufactured by the Simonds Manufacturing Company, Fitchburg, Mass., and Chicago, Ill. There were 47 separate rings made from a 1-ft. pipe, each ring slit and the chain formed. After making this num-



ber of cuts, the condition of the blade was so good that the teeth are clearly defined, even in this greatly reduced illustration. The remarkable flexible property of this blade is shown by its being bent in a complete circle.

HAVE YOU INVESTIGATED AMATITE?

Nobody who is buying ready roofing from time to time has any business to be ignorant of the fact that there is a very large and rapidly increasing amount of no-paint roofings coming into use. The painting feature was the only objection to the old-style smooth-coated roofing. Painting cost money and was very apt to be neglected in the interests of other matters that were more pressing—then, before the owner woke up, the roofings had begun to lose their waterproof characteristics, were absorbing water and being injured by frost. Accordingly, the advent of Amatite, with its practical mineral surface, was hailed with much satisfaction by ready roofing users, and the sales of the new invention have been increasing with tremendous rapidity. The simple fact that Amatite Roofing costs no more than the painted kind, will last as long and longer, and involves no maintenance expense whatever, made it a favorite with building owners all over the country.

Simply as a matter of relative economy and satisfaction, look up Amatite. You can do so very easily by simply addressing a request for a sample to the nearest office of the Barrett Manufacturing Company, New York, Chicago, Philadelphia, Boston, St. Louis, Cleveland, Pittsburg, Cincinnati, Kansas City, Minneapolis, New Orleans, Seattle.



Our Handsome New Ceiling Booklet No. 6

Is a handy reference work we gladly mail free to any up-to-date sheet metal man. It is filled with clear, clean-cut reproductions of practical and pleasing ceiling designs. Bold French Renaissance, ornate Louis XIV., and the attractively simple styles of the old Colonial days are richly illustrated; also, there are highly useful designs of a miscellaneous character. Measurement rules and diagrams, together with information concerning each design, are given. Convenient size for pocket or desk use.

We will mail your copy tomorrow if your address reaches us by that time.

THE EMPIRE IRON & STEEL CO.

64 East Lake St., Chicago, Ill. NILES, OHIO 345 Fifth Ave., New York, N. Y.



SPECIFY AND LAY

"ATLAS" OAK FLOORING

FOR EVERY JOB

The workmanship is guaranteed the best, the grades high and the price low.

All "Atlas" 13/16 flooring is thoroughly kiln dried, dressed and matched, hollow backed, bored and matched, steel polished and wire bundled. All 3/8 flooring is thoroughly kiln dried, dressed and matched, end matched, steel polished and wire bundled. In addition to wire bundling "Atlas" 3/8 flooring, we also pack it in crates when desired, at a small additional cost.

If your dealer can't supply you with "Atlas" Oak Flooring—and every piece is stamped "Atlas"—write us direct. We will reply promptly, giving full information.

The WILDBERG LUMBER COMPANY

Ninth and Eggleston Ave.

CINCINNATI, OHIO

"BERGER'S Classik" METAL CEILINGS



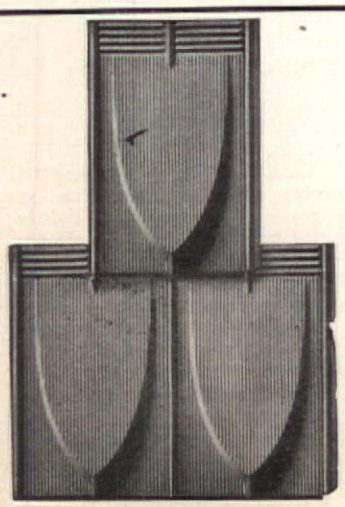
No matter what the building may be—school, church, office or home, you will find in Berger's Catalogue a ceiling particularly adapted to it. Among the dozens of classes and the hundreds of combination designs there is a handsome ceiling to completely harmonize with any room you wish ceiled.

There is good money for you in the agency for Berger's Classik Ceilings. Write today to the nearest branch for the large handsome catalogue.

The Berger Mfg. Co., Canton, Ohio

Philadelphia, St. Louis, Boston, Minneapolis, New York, San Francisco, Chicago, Atlanta

Also Manufacturers of Black and Galvanized Roofing, Eave Troughs and Conductor Pipe, Sidewalk Forms, Metal Lath, Tin Plate, etc.



STYLE B.
Showing Method of Laying

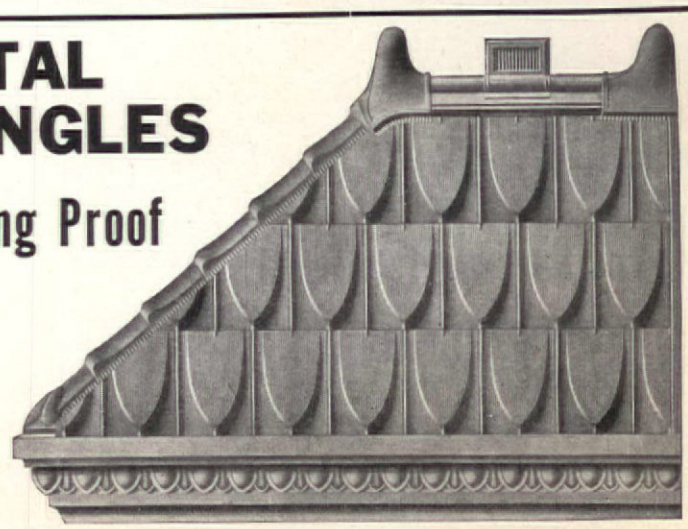
"TITELOCK" TRADE MARK **METAL SHINGLES**

Fire, Water and Lightning Proof

ASK FOR SAMPLES AND CATALOG

Milwaukee Corrugating Co.

MILWAUKEE, WIS. KANSAS CITY, MO.



STYLE B. With Ridge and Hip Finish.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

IDEAL IDEAS.

The May number of Ideal Ideas, published by the Ideal Concrete Machinery Company, of South Bend, Ind., and London, Ontario, Canada, shows the results of their recent prize competition for completed buildings.



Owner, Judge Smith, Trust Building, Ottawa, Canada; architects, The Bungalow Craft Company, Los Angeles, Cal.; contractors and block layers, Boyd Brothers, Osgoode, Ont. Erected at Brittannia Heights; frontage, 38 feet; depth, 38 feet; 1,850 8x8x16 inch faced blocks of rock and panel designs used. Building has concrete foundation, 9 rooms, hot water heat. Cost of block work, $750; cost of building complete, $5,400.

Through the courtesy of the Ideal Concrete Machinery Company we are able to reproduce the photograph receiving one of the prizes. There were several hundred entries from all over the world, and the prizes were distributed to Scotland, India, the Philippines, as well as Canada and the United States.

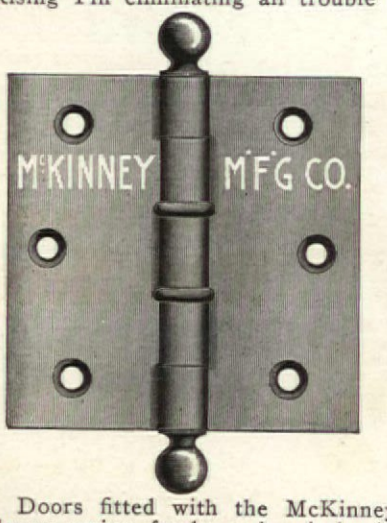
The purpose of the contest was to show something of the unlimited possibilities and great range of opportunities for the use of Ideal Concrete Blocks, and the results justified their most sanguine expectations. Many sent photographs showing the progress of their work, asking that they be not entered in the contest as their work was not as good as they expected to have it in a short time.

The contest emphasized the fact that while many were making blocks, they were not taking the care they should to secure work of the best quality. The workmanship in laying was in many cases not up to the standard, as one block mason was told when in quest of new work: "Of course, concrete blocks are all right—they may be waterproof, fireproof, vermin proof, repair proof, everlasting. and all that, but look at So-and-So's concrete block house, with its uneven mortar joints and the dauby work of the mason. It is fine inside, but outside it is a fright." The difference in care in just this point is largely responsible for the United States obtaining only five of the sixteen prizes.

We believe that any reader of THE NATIONAL BUILDER can obtain a copy showing the prize buildings by writing to the Ideal Concrete Machinery Company, at South Bend, Ind., or London, Ontario, Canada. Ask for Number 12, Volume I of "Ideal Ideas."

ANTI FRICTION BALL TIP BUTTS.

Builders are fast appreciating the solid merits of Butts equipped with accurately fitted Anti Friction Washers of a special metal, preventing any possible wearing away of joints, and in addition have a patented Non Rising Pin eliminating all trouble incident to partially lifted pins. Doors fitted with the McKinney Anti Friction Ball Tip Butts always swing freely and noiselessly, regardless of their weight.



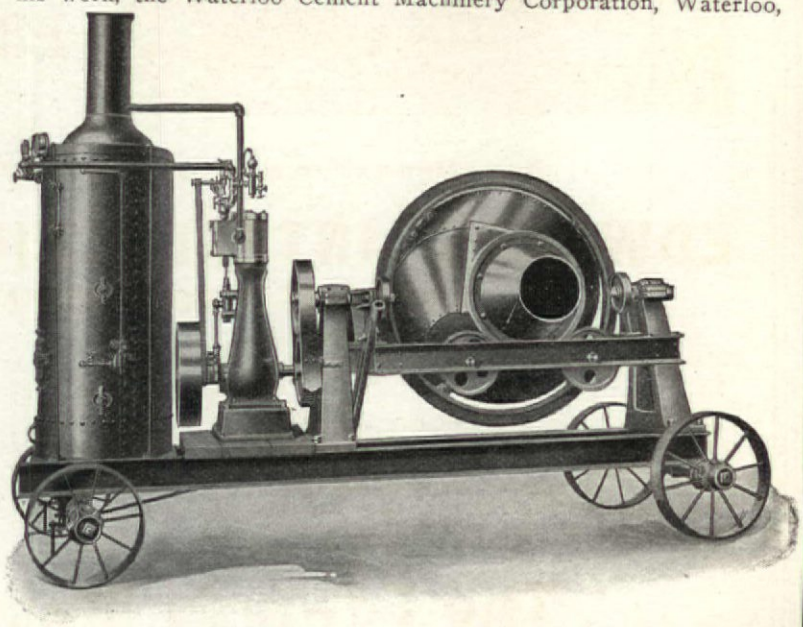
Although these Butts represent quality in every detail, their cost permits of their being used on medium priced buildings as well as the most expensive. The guarantee of the McKinney Mfg. Co., Pittsburg, Pa., represents a house of forty years' standing, owning one of the largest and best plants in the world. Strap Hinges, Barn Door Hangers, Track, etc., are also made under the same valuable guarantee. Their goods in all sizes and standard finishes are to be had of most hardware dealers, and builders and contractors are invited to send for the new 1911 catalogue and to ask their dealer for McKinney's Butts.

TRADE McK MARK

A NEW METHOD OF MIXING CONCRETE.

Engineers and architects are daily becoming more exacting in their requirement in constructions. The unquestioned efficacy of machine mixed concrete has the effect of specifications reading "all concrete must be mixed by machine." In order to get the best work, the contractor must show that he is accustomed to mixing by machine, and in order to carry out the work to advantage, he must use the mixer. So, the question is not a mixer, but which mixer is best for the character of work the contractor is building. The contractor on sidewalk work does not need, in fact, cannot use to advantage, the large mixer used in heavy foundation work.

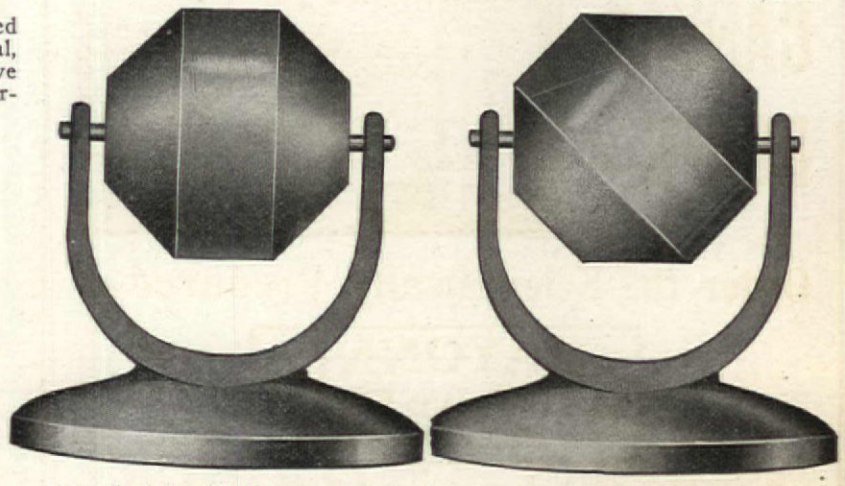
That the intending purchaser may decide which mixer to use in his work, the Waterloo Cement Machinery Corporation, Waterloo,



Iowa, have prepared appropriate literature describing the Polygon Mixers, Hoists and Contractors' Equipment. By the study of this catalog, the contractor is able to see how a slight expenditure for "permanent plant" is able to save money on even the smallest contracts. The use of a mixer stamps the contractor as progressive and will often obtain a contract at a preference in price.

In the Polygon mixers a new method of mixing concrete is used. This can readily be seen by reference to the cuts shown herewith.

In tne Polygon, the shape of the drum provides all the mixing action necessary. When the drum containing a batch of concrete is revolved, the materials are thrown from one side to the other—endwise, sidewise, crosswise and everyotherwise. The process of mixing is thorough and rapid. The complete mixing of all the materials adapts it for dry as well as wet mixtures, and for aggregates of varying sizes. As the principle of mixing requires that every particle of material shall be uniformly coated with cement, it will be



seen that the "Polygon way" is close to the theoretical ideal.

The manufacturers claim that the concrete mixed by this method has a clean, smooth appearance, indicating the thoroughness of the mix.

While the Waterloo Cement Machinery Corporation makes a large list of mixers of various sizes and capacities, it is only necessary to show one in these columns. The machine must be portable and self-contained, and as shown, is ready for the severest work. When equipped for steam in this way, the boilers are made to meet the various state and city ordinances regarding the use of steam boilers. When desired a portable canopy can be added, protecting the engine and apparatus from the weather. Gasoline engines may be used, the nature of this power being particularly adapted to situations where the work is intermittent.

Interested readers of THE NATIONAL BUILDER are requested to write The Waterloo Cement Machinery Corporation, Waterloo, Iowa, for the complete catalog showing all the styles of mixers and other contractors' machinery.



We Want A Builder In Every Town

We Have an Attractive Proposition for One Carpenter or Builder in Every Community to Take Orders for Our Widely Advertised

EDWARDS' METAL SPANISH TILE

ARE EASILY SOLD BY OUR AGENTS

Home Owners Everywhere Are Reading Our Advertisements in the Leading Magazines

EDWARDS' INTERLOCKING METAL SPANISH TILE

ARCHITECTS EVERYWHERE SPECIFY THIS ATTRACTIVE ROOFING

Edwards' Metal Spanish Tile are stamped out of the highest quality Worcester Gradc Terne Plate, size 10 x 14 inches, furnished either painted or heavily galvanized. They are provided with our patented interlocking device, which conceals all nails, makes it possible to get a perfectly moisture proof roof without **soldering** and without danger of having the tile crack open in extreme cold or hot weather.
Edwards' Metal Spanish Tile looks exactly like the best Terra Cotta Tile. They have the decided advantage of being much lighter, easier to apply, longer lived and cost much less.

Write us today about your territory. Here's an opportunity you should not miss. Many carpenters and builders have been so successful taking orders and laying our Metal Spanish Tile that they now devote their entire time to this business. Others have made big profits selling and laying our metal tile roofing "between jobs." We show you how to build up an independent, profitable business in your own community. Write for our proposition today. The territory is going fast. Don't be too late. Send a postal right now.

The Edwards Manufacturing Company

"THE SHEET METAL FOLKS"

Cincinnati, Ohio

430-450 Eggleston Avenue

THE WORLD'S LARGEST MANUFACTURERS OF METAL ROOFING, METAL SHINGLES AND METAL CEILINGS.

For CANVAS ROOFS



Order the Scientifically Prepared—

BAYONNE ROOF AND DECK CLOTH

Easiest to lay—Lasts longest. Requires but **one coat of paint.**
The treatment permeates the fabric and preserves the fibre

BEST FOR PIAZZA ROOFS AND PORCH FLOORS

Ask for Sample Book B-6 and Prices

John Boyle & Co., 112-114 Duane Street, 70-72 Reade Street, **New York**
202 and 204 Market Street, **ST. LOUIS**

The Standard Brand of White Canvas
All Widths—All Weights—Any Quality

GULF STREAM ROOFING CANVAS

Our co-operative department gives complete instruction for laying
SAYONNE OR GULF STREAM

JOHN BOYLE & CO.'S Awning Stripes have been the Standard for 50 years.

A Roof of Slate is the Best Roof You Can Buy



On Churches, Schools, Public Buildings, Dwellings, Barns or Buildings of any kind – a roof of slate improves property values and lowers fire insurance costs; and where drinking water is collected off the roof, it **is the safest roofing obtainable.**

—As a roofing material of solid rock slate still stands supreme; not because it **costs** less, for the **first** cost is a trifle more than for shingles, iron or felt, but because it **never** wears out nor requires repairs.

Sea Green or Purple

Roofing Slate

is absolutely impervious to climatic conditions. It resists the action of air, water, snow, ice, fire, sun and lightning; it cannot warp, crack, splinter, or decay. It is perfectly water-tight, and once laid—will outlast the building it covers.

Write to Us for Delivered Prices

on all sizes and grades of roofing slate delivered at your nearest railroad station. Also prices on Slater's tools and supplies.

Ask for FREE Book of Instructions

We solicit correspondence—even if you won't require the slate until later. Write to us today—now.

American Sea Green Slate Company

"Roofs that Never Wear Out"

Box 150 **GRANVILLE, NEW YORK**

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

A MEASUREMENT DIAGRAM FOR METAL CEILING USERS.

Through the courtesy of The Empire Iron & Steel Company of Niles, Ohio, we have been permitted to print the following measurement diagram and data from that company's ceiling catalogue No. 6, which is now being distributed without cost to interested parties. We recommend that this article be clipped and filed for reference by those of our readers who have occasion to handle metal ceilings.

The diagram is self explanatory and if followed faithfully the resultant measurements will insure a perfect fit of all parts of the ceiling and consequently an attractive job. The rules given in addition should also be carefully noted.

RULES FOR MEASURING.

To the actual length of ceiling to be covered add the depth of cornice on each end wall. To the actual breadth of ceiling to be covered add the depth of cornice on each side wall. The actual Metal Ceiling required is found by multiplying these two results. For instance:

Length of room, 62′, plus depth of Cornice, both ends, 16″ + 16″ = 64′ 8″.

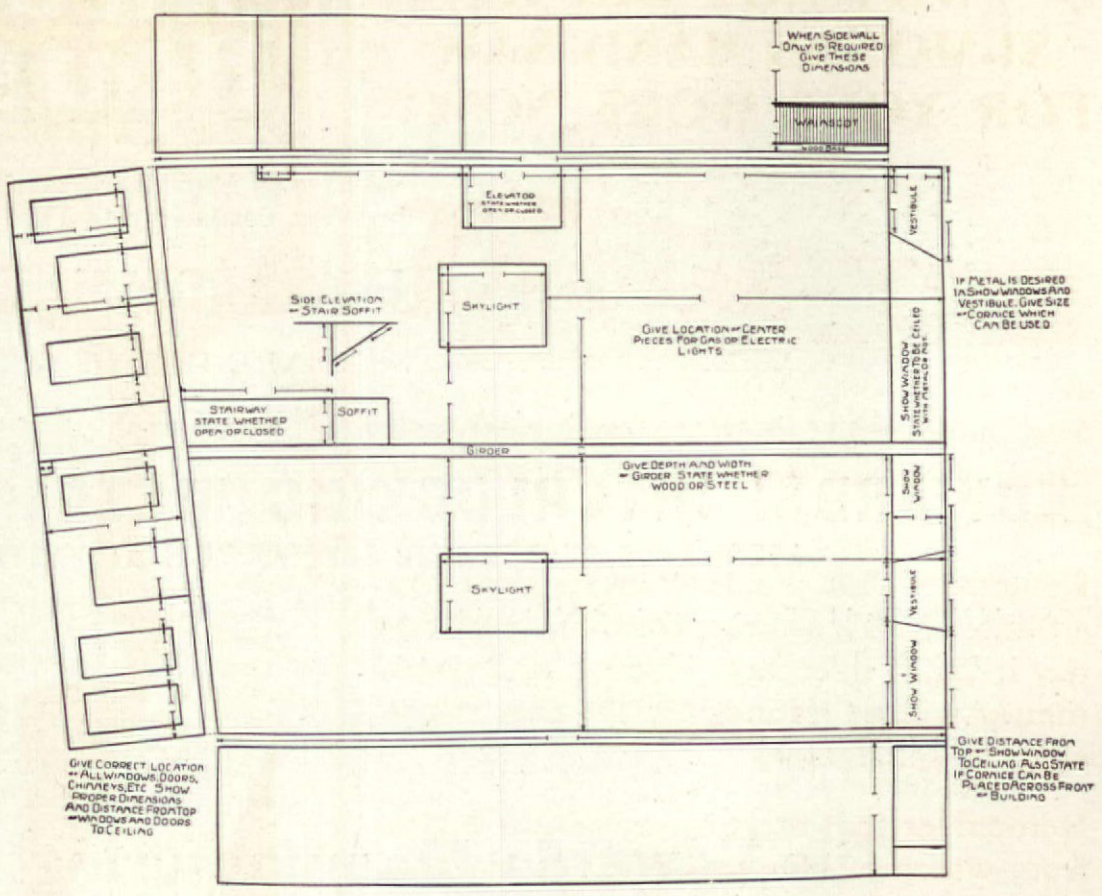
Breadth of room 20′, plus depth of Cornice, both sides, 16″ + 16″ = 22′ 8″.

64′ 8″ × 22′ 8″ = 1,466 square feet of Metal Ceiling required.

Deductions are allowed only for large openings of 75 square feet or more, since fitting around openings is as expensive as covering them.

Beneath each combination illustrated in this catalogue is noted the depth of Cornice.

Measurements of both sides and both ends should be given, as rooms are frequently out of square. Be sure to locate doors, vestibules, chimneys and offsets, on a sketch to be sent with order or inquiry. Give the height of walls, and, separately, of the baseboard. All such fixtures as gas or electric-light drops must be placed so as to conform with the drawing and arrangement of the Ceiling.



MEASUREMENT DIAGRAM

UTILITY CRACK FILLER.

The greatest objection to the use of wall board has always been due to the fact that so many builders do not like to have to panel the walls and ceilings in order to take care of the joints between the sheets of wall board.

The Heppes Company, of 4502 Fillmore street, Chicago, Ill., have perfected an elastic filler known as Utility Crack Filler, which, when used to fill the cracks between the sheets of Utility Wall Board, manufactured by the same concern, entirely eliminates this objection.

Utility Wall Board, having practically no contraction and expansion when applied to the walls and ceilings and the joints filled with Utility Crack Filler, make a smooth surface on which wall paper or burlap can be successfully applied.

The Heppes Company is known as one of the most up-to-date manufacturers in the country, and this recent improvement, together with other important features of Utility Wall Board, makes it one of the most popular building materials known to the contractors, builders and architects of this country.

If you have never seen a sample of this economical, durable and artistic wall lining, it will pay you to write them for a sample today. It's worth your while.

Complete information concerning Utility Wall Board and Utility Crack Filler may be obtained by addressing The Heppes Company, 4502 Fillmore street, Chicago, Ill.

WATERPROOFING MATERIALS WELL WORTH CONSIDERING.

Among the many different brands of waterproofing materials now on the market, the H. W. Johns-Manville Company, 100 William street, New York, are offering a line of fabrics, felts, cements and coatings know as J-M Waterproofing Materials.

These materials, which are the result of this firm's half century of experience, careful study and unexcelled facilities, are especially made to meet every condition in waterproof building construction and have been effectively used for waterproofing underground tunnels, walls of brick and concrete buildings, dams, reservoirs, swimming pools, etc., with much success.

J-M Waterproofing Fabric is strong, loosely woven burlap impregnated with pure asphalt. The asphalt not only clings, but becomes locked into the fabric, and it is claimed that a few layers of this fabric makes a waterproof course of great strength, ductility and elasticity that remains intact and resists moisture even when cracks occur in the cement work.

J-M Waterproofing Asbestos Felt is made of pure asbestos fiber, thoroughly impregnated with pure asphalt. This fabric, being composed of only mineral substances, contains nothing to decay or deteriorate, and is therefore best adapted for waterproofing all exposed and foundation construction work. In addition to being waterproof, it is also positively acid, mould and rot proof. The asphalt is of a peculiar nature, and has wonderful cementitious characteristics. It is used cold and hot and does not run, shove or creep, and will not become brittle in high or low temperature.

This combination produces a waterproofing fabric that is especially serviceable where continual dampness prevails.

One of the most perfect water and dampproof materials made by this concern is their J-M Waterproof Coating. This is a combination of carefully selected materials of the highest grades, which, when applied, makes a film unimpenetrable by moisture. Aside from being inexpensive, it does away with furring and lathing and makes a positive bond between plaster and brick or stone walls. This coating protects plaster from strains due to dampness, also from discoloring by fireproof tile walls. Damp cellars and walls coated with this coating are made clean, sweet and useful. This coating can also be used in place of so-called non-straining cements, for stain-prooving marble, granite and limestone.

This concern has issued a little booklet explaining fully the merits of their waterproofing materials, which they will gladly mail to anyone on request.

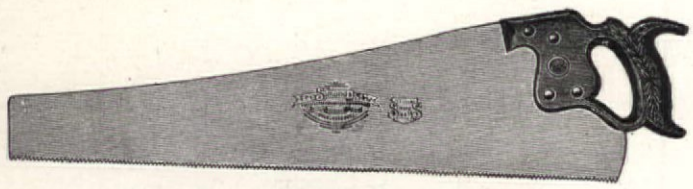
HY-RIB.

Under this appropriate heading, the Trussed Concrete Steel Company, Detroit, Mich., are sending out the sixth edition of their Hy-Rib handbook, showing the value of this fabric in all parts of buildings of various characters and particularly for use in the construction of silos, tanks and conduits.

For the convenience of the reader, the book is subdivided into various sections, such as that for General Data on Hy-Rib, Applications to Floors and Roofs, to Walls and Sidings, Partitions, Ceiling and Furrings, Building Construction in General, Special Tools and Clips for Hy-Rib, etc. The detailed working drawings show exactly how the material is applied to building work. Illustrations are made from photographs showing the use of the material in construction.

Only those directly connected with the building trades have a conception of the manifold uses to which concrete, and especially re-enforced concrete, is being adapted. Not only in massive foundation work to support heavy structures, but in the walls and partitions as well. The danger from fire, as well as natural deterioration and decay, is causing engineers and architects to adopt it more and more in places where it is necessary to balance tects t oadopt it more and more in places where it is necessary to balance the naturally great comp.essive strength of the concrete by adding metal re-enforcement. Such places as walls, partitions could be built of solid concrete, but in order to be stiff enough would have to be very thick and bulky. The addition of re-enforcement allows a much thinner and lighter wall. In the proper design of structures where a thin wall or partition is desirable the engineer has a wide opportunity to display his ingenuity. To aid him this book is prepared.

WHY NOT GET A SI-MONDS HAND SAW FOR YOUR WORK NOW?



You have read so much and heard so much about the Simonds Hand Saw that now it is time for you to try it.

Remember that the dealer who sells you a Simonds Saw is empowered to guarantee it fully in every respect and your money will be refunded if the Saw is not entirely satisfactory.

Remember that there is a variety of styles from which to choose; different lengths, points, straight back or sway back.

Remember the Simonds Hand Saw is made of Simonds Steel and each Saw is packed in a separate case — a distinctive feature.

Remember that the workmen who make Simonds Saws are the most skilled men at this trade.

If it will help you we will tell you the name of the dealer near you who sells Simonds Hand Saws, or, if there is none near you, we will quote you a price on a saw delivered direct from the factory. Just fill in the coupon below, clip it out and mail it to us. The quickest way to get a Simonds Hand Saw.

SIMONDS MFG. CO.
Fitchburg, Mass.

As per your advertisement in the "National Builder," send name of nearby Dealer selling Simonds Saws. I desire a Saw, Length.....

Point.....

Signed.....

Street.....

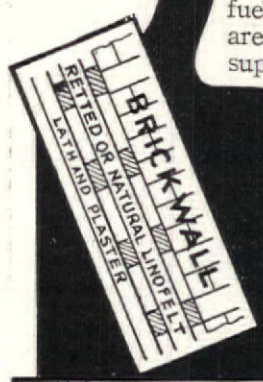
City..... State.....

Sheath Your Houses With LINOFELT

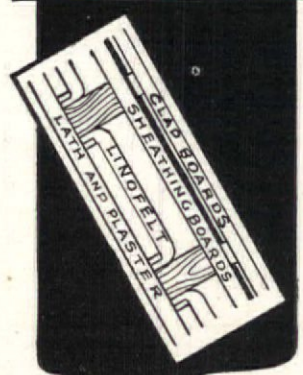
Linen Felt made from Flax Fibre

38 Times More Effective Than Building Paper

BUILD houses that keep the outside *out* and the inside *in*, that keep *out* the cold of winter and the heat of summer, that keep *in* the warmth in winter and the cool in summer. Put up houses and buildings that keep out sound, the rooms of which are quiet and restful. Getting these features will add less than one per cent to the cost of your house, will add more than 40% to its comfort and living value and will effect a constant saving of 40% in all fuel bills. Architects, contractors and carpenters are the ones able to appreciate most the superiority of **Linofelt** because they know how unsatisfactory is ordinary building paper.







These Plans Show The Method

They show you clearly the practical and simple method of insulating walls and floors with **Linofelt.** Every carpenter, every builder, every architect realizes just what these little plans mean. They are keen to the advantages of building according to these methods. They know how important such efficient insulating of walls, floors, ceilings and partitions is to *all* classes of homes and buildings. We might emphasize residences, office buildings, hospitals, school buildings, stores, and buildings constructed for manufacturing purposes. These must have the uniform warmth in winter, coolness in summer and the quiet all the time that **Linofelt** insures.

Anyone who knows **Linofelt** immediately becomes enthusiastic about it—because it has so many delightful features. It is an insulating quilt. No other is as light as **Linofelt** cubical contents considered. It comes from the same source as linen. It is made from flax in the largest flax market in the world—Winona. It is odorless, chemically clean, as sanitary as a surgical dressing.

We have had made comparative tests of **Linofelt** and other sheathing mediums for sound deadening qualities. We will send them on request. The same sound heard 200 feet through ordinary building paper is heard only 2 feet away through **Linofelt.** Tests prove **Linofelt** more than 38 times as effective as building paper for all uses.

Let Us Place All The Data In Your Hands

Let us send you an attractive book for Architects, Contractors and Carpenters showing **Linofelt** in all forms, telling how it is made, showing and explaining plans and methods of using **Linofelt,** illustrated with excellent photographs of residences and buildings built with **Linofelt,** located in different climates. Let us send you this meaty book because it also tells in like manner of Lith Board and Rock Wool. Let us acquaint you with our Service Department, our own engineers, who have a world of experience in insulating work, who have pursued it under all sorts of conditions for a great many years, who are fully equipped and qualified to be of the greatest assistance to you in your work, whom you can consult at any time regarding any of your work *gratis.* Let us send you a **free** sample of **Linofelt** so that you can see it with your own eyes and feel it with your own hands and have a close realization of its extreme effectiveness, have a firm knowledge that it will do *more* than we claim it will do. Get the book, the service, the sample by writing to us today. **Please ask us for the name of the dealer nearest your home.**



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Branches and Warehouses in all the large cities in United States, Canada and Mexico.

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PATENTED

The peerless flexible-bit-gauge when it comes in swift contact with the wood; it will not mark the wood or slip upwards, or interfere with chips as other bit-gauges do.

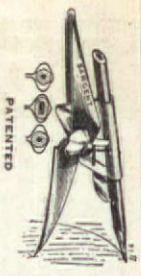
The only gauge which can be used successfully for boring mortise locks. Just the thing for dowels

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Specialty Manufacturers
612 West 110th St., NEW YORK

Patent just allowed on a Feed-Flange Auger-bit that will revolutionize the boring bit trade. Will incorporate or otherwise. Several other commanding metal specialties. Most liberal terms to manufacturers.



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Steel points can be moved up or down to suit pencil. **The Peerless** is just right. Broad point for plasterwalls, etc. Sharp point for Quirks and Mouldings. Will hold any shape pencil equally well. This Scriber will hold a framer's pencil, thus doing away with breaking of pencil point.

Polished Steel, 30 Cents. Nickel-Plated, 35 Cents. Five Cents extra with Oval Pencil.

AUTOMATIC SASH HOLDER

saves cord, weights, pulleys and materials—no pockets—easier to install—for old or new windows. Send for sample and catalogue today. Agents wanted. Sold by the hardware trade or direct from 277 Broadway, New York.

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Write for Catalog P-T.

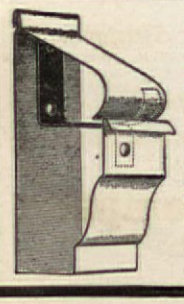
PHOENIX SLIDING BLIND CO., PHOENIX, N. Y.

BUNGALOWS

Over 4,000 Builders and Architects bought copies of the second edition of "California Bungalow Homes" during 1910. Half of them wrote back that the book was worth many times its cost. New (3rd) edition is just ready. Price $1.00 postpaid. Send for a copy. The Bungalow *is the thing*, and this is the only book published which shows the REAL California Bungalow inside and out. Better send at once.

Smaller book, showing 38 Bungalows and floor plans, 25 cents postpaid.

The Bungalowcraft Company, 407 Chamber of Commerce, **Los Angeles, Cal.**



Cassens Ideal Eaves Trough Takes Water Only

The Ideal completely overcomes the disadvantages of the old style open gutter. It satisfactorily catches and carries away the water that falls on your roof. Its use insures clean, healthful cistern water. Leaves, trash, gravel, etc., cannot enter it. Neither can birds build nests in it. Therefore it is never clogged. **Ice will positively not break down the trough**

A unique and important feature of the IDEAL is that it will not fill with snow and ice. When it sleets the small opening (about one-eighth inch) is quickly closed. This prevents the bursting of the trough, also of the down spout. When it thaws the ice melts, and the entrance opens automatically before the water from the roof reaches it.

The Ideal can now be erected with a Wire Hanger if face-board has mouldings.

Special Propositions to Contractors, Builders and Architects

WRITE FOR FREE BOOKLET

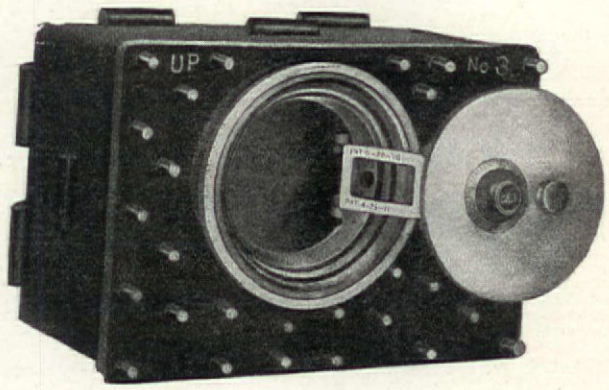
CASSENS MANUFACTURING CO., Edwardsville, Ill.

THE GALE WALL SAFE.

To protect one's valuables, we must consider the dangers which confront them. There is the ever present danger of burglars and petty thieves, and there is the constant danger from fire. There is also the danger of valuable papers being lost through misplacement in books, files, drawers, etc. At house cleaning time, little effort is made to carefully look over large bundles of papers, boxes, etc., but it is left to chance that no valuables are thrown out.

Protection against all of these dangers can easily be secured in large, cumbersome safes or vaults, but the average householder or tenant has no such amount of valuables as would warrant the purchase of such large pieces of equipment.

For the convenience of those wishing a safe place for ordinary valuables, papers, etc., the Willis Manufacturing Co., of Galesburg, Ill., are making a wall safe of unusual merit. They are made in several sizes, having a capacity of from 320 to 880 cubic inches, and are intended to be built in the walls or partitions of either frame or brick houses. When installed only the circular door is exposed,



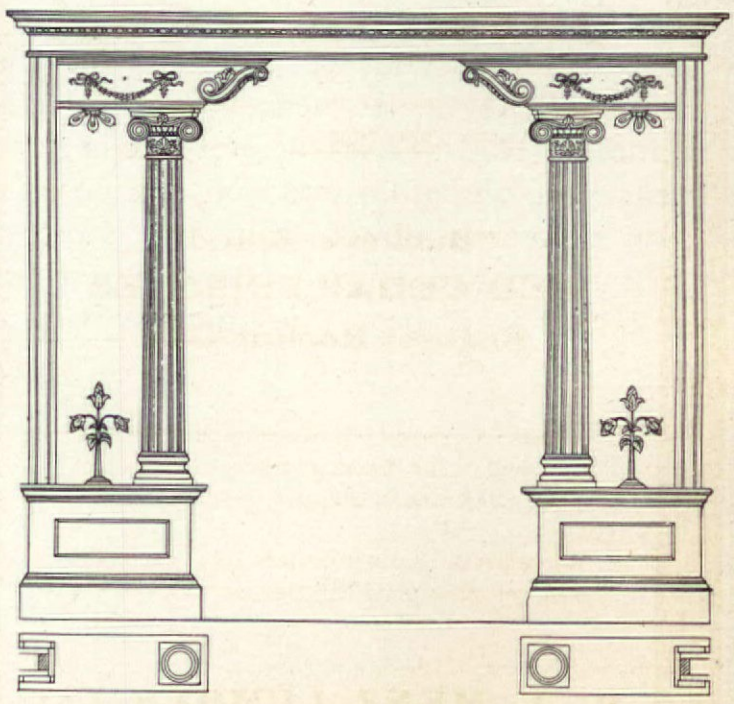
having a three tumbler combination lock of improved mechanism. The makers claim the locks are unpickable and are capable of an indefinite number of changes.

For protection against fire, the safe is lined with asbestos lumber, which, with the resulting air-spaces, insures perfect safety.

Don't leave your valuable papers, notes, receipts, etc., lying around where they will get lost or destroyed. Write to the Willis Mfg. Co., Galesburg, Ill., and get their information and prices on the Gale Wall Safe.

GRILLES, COLONNADE OPENINGS AND CONSOLES.

The catalogue number 19 of the Chicago Grille Works, 826-836 Wells St., Chicago, Ill., shows an excellent line of grilles, parlor colonnade openings, consoles, etc. The experience of the Chicago Grille Works in this line of material is based on many years of manufacturing and designing. They have always kept up to date in designs and have never cut down the size of the columns used in their openings from what they should be to mere curtain poles. They have always manufactured from the best materials and the sizes of columns, dowels, etc., have always been in proper proportion no



matter if this did mean a little more expense to them in getting the work out.

The policy of the Chicago Grille Works has been to give their customers the best materials, prompt shipment and fair treatment in every way and there are many of the best contractors and builders, not only in Chicago but in many other cities and towns, who will thoroughly agree to these claims.

The accompanying plate number 102-C.-18 illustrated here shows that the Chicago Grille Works is giving special attention to electric wiring, the connections being shown both on the pedestals and on

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

SIMPLE, SCIENTIFIC SASH VENTILATOR

Practical proven device for putting pure air in, poor air out. Does not disfigure windows nor offer projections interfering with dusting or washing windows, non-rustable brass throughout. Adjustable to any air current. No drafts, dust or insects.



Results far better than from costly cumbersome affairs formerly used. Retails at $1.25 each.

Write for the big special discount made to National Builder readers.

Tested for three years by experts. Users are delighted. Get the facts and keep the profits.

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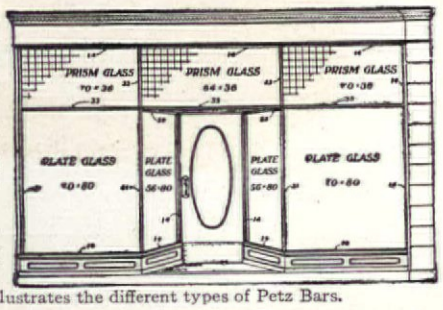
IDEAL SASH VENTILATOR.

Write for Details

IDEAL MFG. CO., - ERIE PA.

It Backs Your Reputation

A careful examination of Petz Bars and Corners will convince any architect or builder that he can recommend it with safety to any customer, large or small, who is erecting a modern store front. It combines style, strength and safety. It allows of easy installation, will not break glass, and gives perfect ventilation. Those who have used it all endorse it in highest terms.



We desire only a chance to convince you. Write us about your requirements, or ask us for our booklet on "Modern Store Front Construction." It describes and illustrates the different types of Petz Bars.

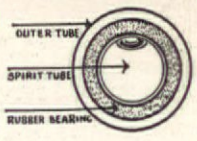
DETROIT SHOW CASE COMPANY

Sole Makers

481 Fort Street West - - DETROIT, MICH.

AKRON LEVELS DON'T BREAK

When you buy an Akron Level, you get one that you can be as careless with as you like—it won't break every time you accidentally drop it.



Study the construction of an Akron Level and you'll instantly see that the Akron is the strongest and most substantial level ever made. They're designed to stand the falls and jars incidental to daily use without danger of breaking.

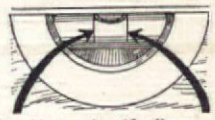
Instead of a thin, easily broken spirit tube, as most levels have, the Akron has a double spirit tube. The inner tube is as heavy and strong as ordinary levels have and it is protected and made doubly strong with an outer tubing of heavy steam gauge glass, with elastic rubber bearings between the two tubes.

This one feature alone should warrant you in buying an Akron Level, but there are several other equally strong reasons why the Akron Level is best of all. For instance:



Here is the Exclusive Easy Reading Feature

The two fine silver lines around spirit tube, one at either end of bubble when it is exactly in the center, makes the Akron the easiest-to-read level in the world. No other level has this exclusive feature which shows L-E-V-E-L, or otherwise, instantly, and can be seen at a considerable distance. No other level is so scientifically accurate, or so well adapted to every use that a level can be put to.



Akron Eclipse Levels are made in 33 styles and sizes for carpenters, masons, concrete men and everybody who uses a level.

And yet, with all the big advantages possessed by Akron Eclipse Levels, they cost no more than the ordinary kind.

Sold by Hardware Dealers Everywhere

If your dealer does not sell Akron Eclipse Levels, write us for catalog, mentioning your dealer's name. You want the best level that money can buy, so find out about Akron Eclipse Levels before you purchase. Write us today. A postal will do.

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It's A Question of Cost

and the first cost is not all important—it's the first cost **plus repairs.**

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We sell retail lumber dealers only, but yours will get these good shingles for you.

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THIS ROOF WAS LAID 20 YEARS AGO



CORTRIGHT METAL SHINGLES

WE are creating such a demand for them that they are rapidly supplanting wood shingles everywhere.

The use of wood shingles is already prohibited in many sections, because of their lack of fireproof qualities.

The modern roofing is **Cortright Metal Shingles** because they have every good quality a first class roof should have.

The contractor who handles **Cortright Shingles** in his section is getting the business.

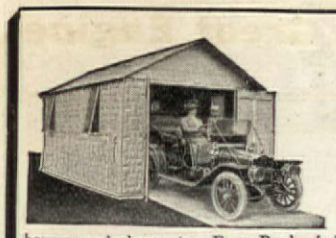
Are you equipped to meet this growing demand?

If not, write for our special proposition to contractors.

Cortright Metal Roofing Company

PHILADELPHIA AND CHICAGO

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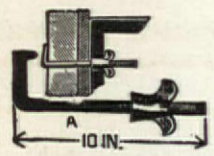


This PORTABLE FIREPROOF GARAGE is the only absolutely fireproof portable garage. Made entirely of galvanized steel. No wood. As handsome and substantial as masonry at one-fifth the cost. Lasts a lifetime. You can put up or take down in a few hours. All parts interlock and no frame work or foundation is required. *Every inch a substantial, fireproof, portable building.* By the PRUDEN SYSTEM of Portable Fireproof Construction we also build ideal cottages, hunting lodges, boat houses, work shops, etc. Every Pruden building is *guaranteed*. GET OUR FREE CATALOG. Write us the name of your auto and model number for catalog and price of suitable size garage. Write today.

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WHAT WOULD YOU SAY if you had Wall Brackets that would last a lifetime?

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Be decidedly cheaper than continually making wooden ones—would it not? Absolutely safe too.

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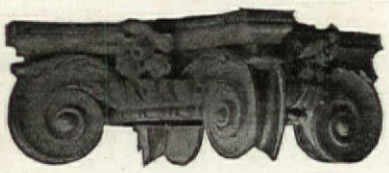
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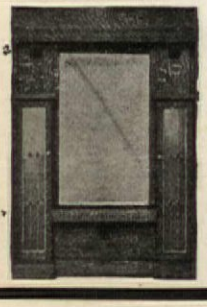
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SEND 15c for catalogue showing 1,000 designs on Ramps, Easements, Newel Posts, Mouldings and Balusters.

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Consoles, Columns and Grilles

add to the fine appearance and value of any building. Especially if they are made by us. In quality and price our work is not surpassed.

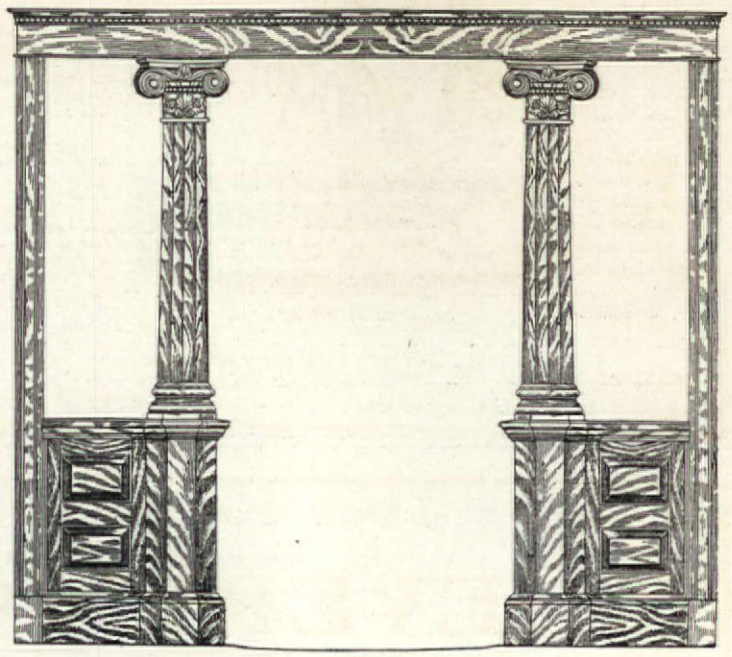
SEND FOR CATALOG No. 16

It contains many beautiful designs of Consoles, Columns and Grilles.

NORTHWESTERN GRILLE WORKS
Office and Showroom, 1824 Milwaukee Ave., CHICAGO

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

the beam brackets. Plate No. 55-C.-18 shows a neat arch design for an opening between a stair hall and parlor, where a little more privacy is needed by the home owner. This arch, as well as the other, is made in various widths and heights, each in proportion to the open-



ing to be filled. The catalogue is issued by the Chicago Grille Works shows many other fine designs, such as these two, and can be had to make selections from upon request.

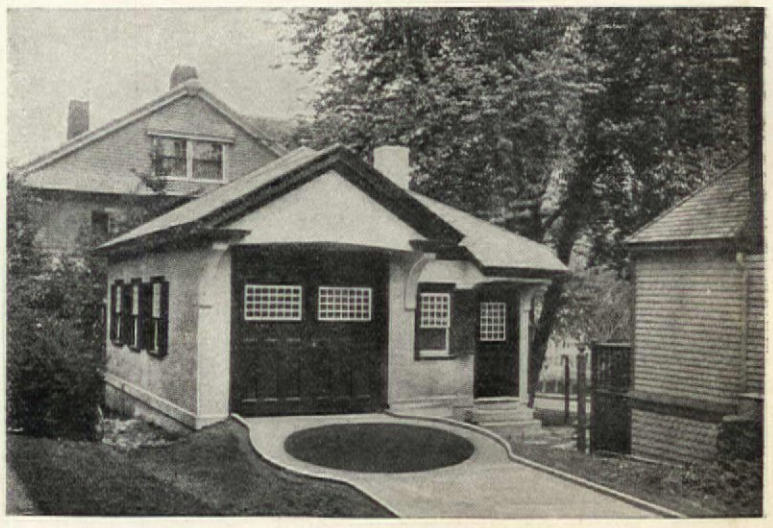
AUTOMOBILE TURNTABLES.

In the construction of a small garage a turntable is a great convenience, in a large one it is necessity. This statement would apply nearly as well to stables, where most of the readers of THE NATIONAL BUILDER are familiar with the efforts necessary to turn carriages around in close quarters.

As manufactured by the Lansing Wheel-Barrow Company. A turntable is not a difficult piece of equipment to install and the simple construction insures freedom from repairs. When properly installed, the table can be used as a wash stand, the water running freely over the smooth top and finding its way out through a trough at the edge of the pit.

Nor is it necessary to put the turntable in the garage. It can with equal facility be placed in the driveway in front of the door; this allows one to drive into the garage when in a hurry, or if time permits the car can be turned before entering the garage, and to be ready for leaving the garage under power.

The use of a turntable is more than a matter of convenience. A large part of "tire trouble" results from turning and twisting the car in cramped quarters, such as are usually met with in the cities. The cost of repairs due to a slip on a dark night, tearing off the doors

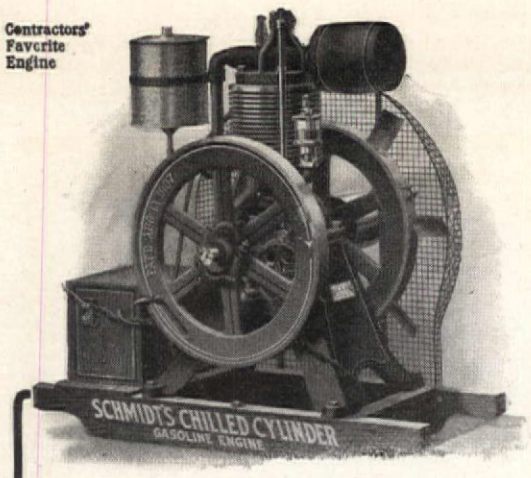


of the garage or smashing the top or guards will soon equal the cost of the turntable. The approach to the garage is not always a broad level stretch. Only too often there is a sharp turn or a steep grade with obstacles on one or both sides. A turntable is then the only practical solution.

When the garage must open directly on the street, as it must in most city garages, the danger not only to the street traffic and pedestrians but to the automobile itself, makes a turntable a real investment. A backing automobile receives scant courtesy especially when unnecessary, and these trouble are entirely preventable.

If you neglected to install a turntable when you built your garage or if you are about to build one, write to the Lansing Wheelbarrow Company, Lansing, Michigan, and ask for "Talks on Turntables." You will find it interesting and instructive.

Contractors' Favorite Engine



SEND NO MONEY—Don't send us a cent when you ask us to ship this engine. Remember it is air cooled and the easiest engine to handle.

$7.50 and You Keep This Great Engine

Yes, sir, that's right—you keep this engine for $7.50, a wonderful gasoline engine offer, an offer without a parallel. We ship you Schmidt's Chilled Cylinder Gasoline Engine on your simple request without an order or any promise from you. You use the engine 10 entire days, use it all you want to. Then if you don't want it, send it back at our expense. If you do wish to keep it, pay us **only $7.50 and the rest in the easiest monthly payments. We send you the engine free,** to prove that it is the greatest **air cooled** 3-horse power engine on earth. It is the only engine with the marvelous, powerful **chilled cylinder.** The only small engine with a **spark retarder.** The new type gasoline engine that has revolutionized the gasoline engine industry. The only engine good enough to send out on **actual free trial** without a cent down in any way.

Ten Days' Trial FREE—This is the first genuine free trial ever offered on gasoline engines for farm and shop use. We want you to see that women and children can run this engine. Use the engine to run any machinery you have—the pump—lathes—saws—drills—hoists—concrete mixers—anything. Engine is ready to run when you get it. We will send you prepaid our sensational offer and our very useful book, "How to Use Power," free.

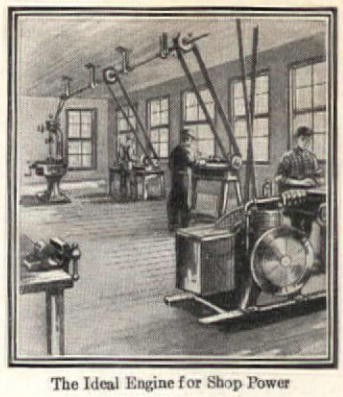
5 Years Guarantee—Schmidt's Chilled Cylinder Gasoline Engine is absolutely guaranteed for 5 years in every piece and part. The biggest bank in Iowa backs our $1,000 challenge offer.

Long Time to Pay

If you like this engine after trying it out for 10 whole days you can keep it and take long time to pay for it on **easy monthly payments,** or after using it free for 10 days, just send it back at our expense.

How to Use Power

To all who will write promptly we will send our useful book, "How to Use Power," free. Send us your name and address today.

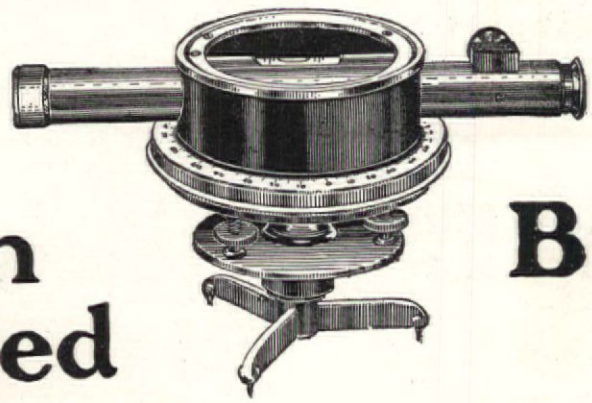


The Ideal Engine for Shop Power

Schmidt Bros. Co. Engine Works, Dept. 697X, Davenport, Iowa

EVERY CONTRACTOR

LARGE OR SMALL WOULD BUY A



Bostrom Improved Builder's Level

If he would just drop us a line to ship him one for inspection and approval. We say that because we have never known a Contractor, Builder, Architect, Surveyor, Civil Engineer, or even Instrument manufacturer to inspect a BOSTROM LEVEL who did not concede that at the price there had been nothing yet produced which would compare with the Bostrom in all the necessary essentials of a simple, accurate, durable and throughly dependable Level

Another thing, the Bostrom Level possesses means of adjustment for proving its accuracy, not surpassed by the highest priced Engineer's Level, and this principle is applied in such a novel and simple manner that even the inexperienced operator can **prove his work right on the spot,** and it can be done in a mere fraction of the time required to prove the accuracy of any other level, regardless of the price.

You have to examine the Bostrom Level to appreciate all of its merits, but the above feature alone makes sales on sight, and a sale always means a Bostrom endorser.

We back up every statement we make with a GUARANTEE of satisfaction or money back.

Our terms are cash with order, or shipment made C. O. D. SUBJECT TO EXAMINATION. Prices: No. 3, $25.00; No. 4, $30.00, f. o. b., Atlanta. Shipping weight 15 lbs., and complete outfit includes Level, Tripod, Graduated Hardwood Rod (not furnished by any other manufacturer without extra charge), Target and Plumb-bob, Trivet, and neat oak box for keeping Level when not in use. Eyepiece in No. 3 Telescope has magnifying power of 10 to 12 diameters, with sliding focus; and eyepiece in No. 4 Telescope has magnifying power of 18 to 20 diameters, with rack and pinion focus.

If you are needing Level at once, order direct from this article, as we do not even require you to guarantee express charges (and no other instrument manufacturer ever made such an offer). We don't hesitate to do it, as we have shipped thousands of Levels in that manner, and the enthusiastic endorsements of these purchasers gives us the unlimited confidence that the Instrument will please you. If you are not needing Level right away, write for full description and get acquainted with the Bostrom before buying. Bostrom's Levels are used and endorsed in every State in the Union, and are rapidly taking the place of instruments much higher in price, and you owe it to yourself to inspect the Bostrom before buying.

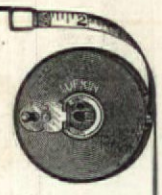
BOSTROM-BRADY MANUFACTURING CO.

126 Madison Avenue **ATLANTA, GA.**

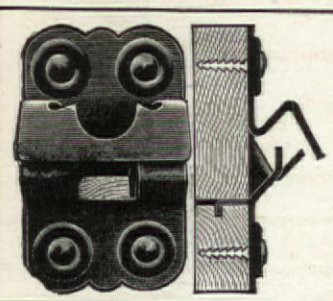
PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

LUFKIN
Steel Measuring Tapes

With Instantaneous Readings can be used at all times and under all conditions with a sense of utmost security. They are absolutely accurate in themselves and the improved graduations make errors impossible. Send for catalogue No. 12.



THE LUFKIN RULE CO. SAGINAW, MICHIGAN, U. S. A.
New York - Windsor



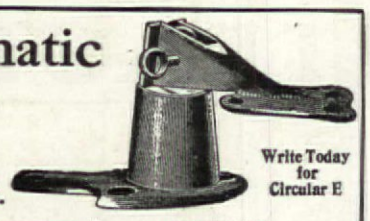
THE WATROUS No. 18 SAFETY SASH HANGER
EASIEST AND QUICKEST TO SET

Won't blow off or be dropped off by children or careless servants. Can't be set wrong. The best of them all. Only sash hanger on the market with gauge lugs which make it impossible to set it in any way but the right way. Nine-tenths of the trouble with sash hangers comes from their being set wrong. The Watrous No. 18 is ALWAYS right. Full directions with each set.

E. L. WATROUS MFG. CO., Des Moines, Iowa

Whipple's Automatic Blind Hinge

Reasons Why THEY ARE THE BEST
- Cannot slam or blow off.
- No fastening required.
- No blinds to trim or catches to interfere.
- Will hold blind—open, half open or closed.

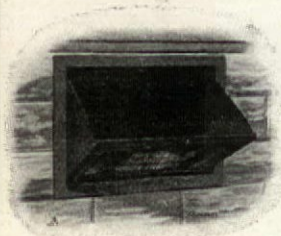


Write Today for Circular E

We also manufacture a flush hinge, constructed on same principle
Two styles, for brick or wood buildings

R. P. WHIPPLE & CO. 277 Main St., Springfield, Mass.

The Window Chute
FOR BUILDERS OF MODERN HOMES



Admits light, locks automatically, and is burglar proof. Very easy to install. Write for price and catalogue giving ten special advantages.

HOLLAND FURNACE CO.
HOLLAND, MICH.



Electric Light Systems
for RESIDENCES, STORES, HOTELS, CHURCHES
or any building not connected with a city plant.

Low cost to install and operate. Just press button for flood of light. Electricity for door bells, burglar alarms, flat irons, vacuum cleaners, etc., can be had from the same plant.
Architects, contractors and builders write for our special proposition for installing the first plant in your town.

JOHNSTON MANUFACTURING CO.
Makers of the "Best" Water System for Country Homes.
No. 6-A Eleventh Street, - KANSAS CITY, MO.

Topp's Framing Tool
A PERFECT TOOL, AND THE ONLY TOOL FOR THE PURPOSE EVER INVENTED



PRICE, $1.75

Saves from 3 to 24 hours in laying out a single roof. Saves time for the skilled mechanic, and enables the ordinary workman to frame the most difficult roof with absolute certainty.

IT DOES ALL THIS
It is accurate, thus preventing all mistakes.
It gives angles for any pitch.
It gives lengths for any rafters.
It gives cuts for principals, jacks, hips, valleys and cripples.

G. A. TOPP & CO., Indianapolis, Ind. See tool at Your Hardware Dealer's.



Van Dorn's Steel Joist Hanger Has no Equal

Send for Catalogue

THE VAN DORN IRON WORKS CO.
CLEVELAND, : : OHIO
Structural Steel and Ornamental Iron Workers



No. 1—Steel Joist Hanger for Wood Header.

No. 4.—Steel Joist Hanger for Brick Walls.

CORTRIGHT METAL SHINGLES.

Practically every reader of THE NATIONAL BUILDER is interested in roofing, and we are pleased to be able to announce that the Cortright Metal Shingle Advocate will be sent free for one year by the Cortright Metal Roofing Co., 50 N. 23rd St., Philadelphia, Pa. The fact that an American home catches fire every three minutes, should lead everyone to try to reduce the fire risk. A large, too large, proportion of fires start from the roof, and by making that part of the building incombustible as well as rain and wind proof, the metal shingle is doing excellent work.

Remember, you can get your name on the list free by mentioning NATIONAL BUILDER to the Cortright Metal Roofing Company, 50 N. 23rd St., Philadelphia, Pa.

CANADA'S ASBESTOS SUPPLY.

[From Consul A. E. Seyfert, Owen Sound, Ontario.]

According to an official report, Canada produces 82 per cent of the world's supply of asbestos. The companies operating asbestos quarries and factories in Canada are capitalized at $24,290,000. In 1880 only 380 tons of asbestos were produced in the Dominion, valued at $24,700; in 1909 the output was 63,300 tons, valued at $2,300,000. In 1909 2,000 men were employed in the asbestos industry, and received wages amounting to $1,350,000. In the Black Lake quarries, in the Province of Quebec, there are 451,000,000 tons of asbestos rock in sight. The Russians are the only real rivals as regards extent of asbestos resources, but are heavily handicapped by the excessive cost of transportation of $35 to $40 per ton from the Russian mines to London. Serious competition is not feared by the Canadian companies on this account.

The asbestos slate or shingle industry is being developed by the plants in Canada, and predictions are made that in a short time 75 per cent of all the asbestos produced in the Canadian quarries will be used for asbestos shingles. The asbestos-slate business is only five years old, but during that time the demand for this article has increased enormously, and large factories are being established to supply the demand for this new roofing material.

HOW TO SELECT DRAWING INSTRUMENTS.

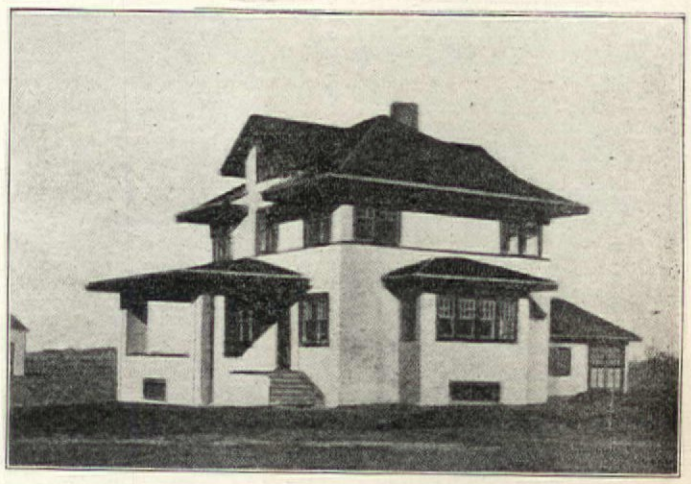
Under this heading the Keuffel & Esser Co. are sending from their general office and factory at Hoboken, N. J., a dozen or more pages from their catalogue. The pamphlet describes in detail their grades of drawing instruments, especial attention being paid to the construction of the Pivot joint of their dividers and compasses.

Many architects and draftsmen are familiar with the Keuffel & Esser Co. goods, and others should inform themselves as soon as possible.

WARM, COOL AND QUIET DWELLINGS.

Under this appropriate heading the Union Fibre Co. of Winona, Wis., are sending out a fine catalogue describing their products and illustrating their use as applied to structures of many kinds.

Of course we want a house warm in winter, cool in summer and free at all times from internal vibration from room to room and from floor to floor. But the question is, how can these results be best obtained. The use of insulation makes a house warm in winter by preventing the cold winds from penetrating and preventing the heated air from escaping. Wrapping a blanket around a house keeps out the cold air, and keeps in the warmed air exactly on the same principles that we wear clothes. The saving resulting from the use of proper insulation, such as Linofelt, soon exceeds the cost of



the installation, besides the greater comfort obtained through its use. What is true in winter is also true in summer, the protective effect of the insulation keeps the warm air outside, and makes the interior cool and comfortable on the warmest days.

It would be impossible to build a tight wall thick enough to prevent any air passing through, but this might not prevent the changes in temperature or the passing of sounds and vibration, for instance if the partition was of sheet metal. By the use of a preparation such as Linofelt, the passage of heat and vibration are also stopped, making the walls and partitions practically sound proof, as well as guarding against changes in temperature.

Insulation should be used whenever it is desired: first, to guard a building against changes of temperature, keeping it warm in winter and cool in summer; second, to prevent sound passing from room to room or from floor to floor, as in schools, hospitals, conservatories, public halls, etc.; third, to keep cold places cold, as refrigerators, ice houses, cold storage, refrigerator cars, etc.; fourth, to prevent condensation of moisture on walls and ceilings.

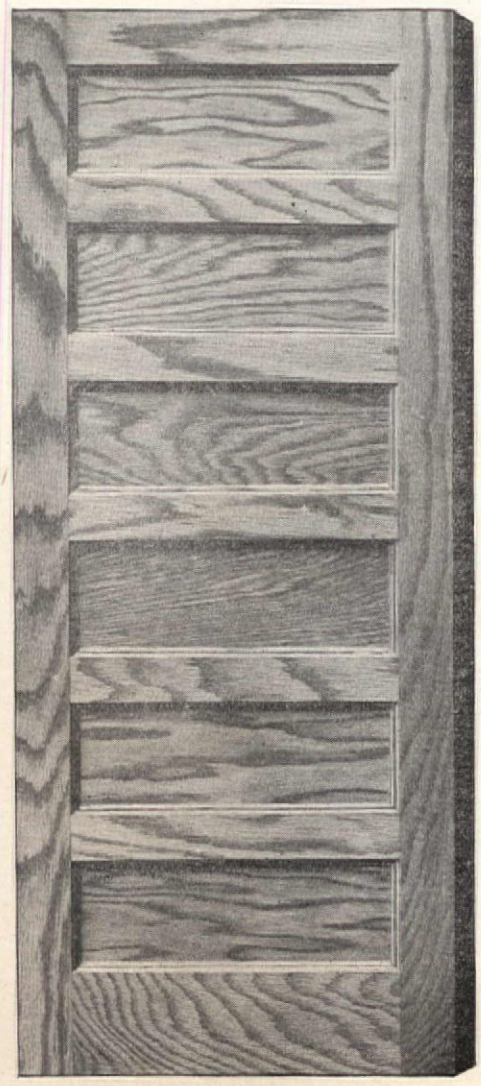
PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.



Oak Doors Floors & Finish

at Less Than Dealers Ask For Pine

Despite the growing scarcity of Oak, which has been seized upon by lumber dealers and manufacturers as a pretext for raising prices on Oak Doors, Interior Finish and Flooring, we are actually selling the very finest qualities and grades at **less than dealers charge for Pine.** Years ago the Gordon-Van Tine Company arranged for the output of large tracts of the best Oak timber in America. **Our customers profit by our foresight.** We are actually selling Oak to carpenters and contractors at less than the same material would have cost you **ten years** ago. The cut in prices not only affects **Oak Doors,** but extends through the whole line of **Oak Finish and Interior Trim.** A further reason for our low prices on Oak is the big scale on which our goods are manufactured, and our small selling expense.



Oak Doors—All Styles

The most artistic line of Oak Doors in the country. Veneered Oak Doors set with French Polished Plate Glass; Craftsman Veneered Red Oak Doors, glazed in choice designs; Plain Veneered Oak Panel Doors; Oak Sliding Doors and many special designs, at less than half dealers' prices.

Inside Mouldings in "Mission" Styles

We carry in stock for immediate shipment, Oak Mouldings, Interior Finish, Beamed Ceiling, etc., to harmonize with any architectural scheme. Our prices save you big money.

Oak Flooring at Pine Prices

We are selling the finest grade of Oak Flooring at such low prices that you can floor a home in Oak at about the usual cost of Pine.

Our Millwork Catalog Your Savings Bank

We sell by mail direct to thousands of Carpenters and Contractors. Our Grand Free Millwork Catalog describes, illustrates and quotes net prices on over 5,000 Bargains in Building Material. We guarantee quality, safe delivery and satisfaction. We save our customers over a million dollars a year.

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Our responsibility is vouched for by three big banks with combined capital of $2,350,000.00



Gordon-Van Tine Co. 583 Federal Street Davenport, Iowa

(172)

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If It Pays Over 1,000 Contractors to Use Convertible Builders' Levels

it will pay you to investigate why the "STERLING" is the strongest and most accurate Convertible Level made, and how its use will save you its cost in one season's work. Send for Catalogue, Manual and special offer for this month.

Level guaranteed for two years

PRICE Complete, $60.00

ISZARD-WARREN CO., Inc.,

136 No. 12th St., Sole Makers Philadelphia, Pa.

DO YOUR WORK ON THE LEVEL

AND USE A

WHITE'S IMPROVED TILTING LEVEL



which will guarantee you against errors. It will pay you to investigate its merits. Write for Catalogue and Special Prices.

LEVELS for $1 and Upwards

DAVID WHITE COMPANY, 421 E. Water St., Milwaukee, Wis.

THE JACKSON ALUMINUM LINE LEVEL



Is designed particularly to meet the requirements of all Mechanics in building construction, especially Bricklayers, Masons, Carpenters, Millwrights, Architects, and Cement Workers.

By using the Aluminum Line Level you can take Levels in one-half the time required by the old method of the Straight Edge.

This is possible because the Aluminum Line Level weighs only one-fourth ounce and is easily and quickly attached to a line. Levels thus taken are guaranteed to be accurate on a stretched line from one to forty feet. Besides, from its construction, it can be used as a Pocket Level.

This cut shows the Aluminum Line Level, including Attachment and 40-ft. line. Complete in Leatherette Case.

PRICE $1.00, POSTAGE PREPAID

It is especially adapted for laying out foundations for buildings. It will do the work no other level will do. For sale at hardware dealers, or

JOS. WOODWELL CO., Sole Agents, 201 Wood St., PITTSBURG, PA.

Drawing Materials **Surveying Instruments**

Drawing and Blue Print Papers, Architects' and Builders' Levels, Drawing Instruments, T Squares, Triangles, Scales, Inks, etc. Steel and Metallic Tapes, Builders' Levels. Repairing promptly executed.

Catalogue on Application

127 Fulton Street New York

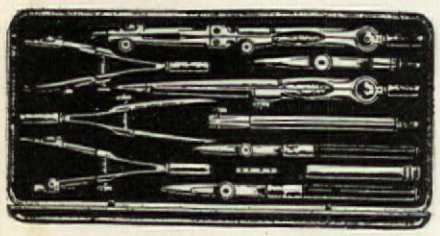
KEUFFEL & ESSER CO.

General Offices and Factories Hoboken, N. J.

CHICAGO 111 East Madison St.

ST. LOUIS 813 Locust St.

SAN FRANCISCO 48-50 Second St.



ALOE THE STANDARD FOR 60 YEARS

FREE! FREE! FREE!

Our new catalogue of Civil Engineers' and Surveyors' Instruments, Architects' and Draughtmen's Material, Draughting Room Furniture, Blue and Black Print Papers, is now ready for distribution, and will be mailed on receipt of request.

A. S. ALOE CO., : 511 OLIVE STREET, : ST. LOUIS, MO.

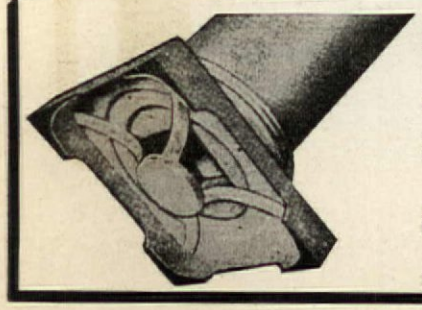
FREE OUR BIG CATALOG OF BUILDING MATERIAL

Write today for a copy. It will save you money on new or remodeling jobs.

LOW PRICES—QUICK SHIPMENTS—QUALITY GUARANTEED

THE HUBER BUILDERS MATERIAL CO.

39-43 Vine Street, CINCINNATI, OHIO



Are You Going to Build?

Don't forget to remind your architect to specify the Zimmerman Iron Base, the only one with a center bearing.

It ventilates the column, thereby preventing checking or opening and does not allow water to stand at the base to cause rot.

WRITE FOR CIRCULAR J

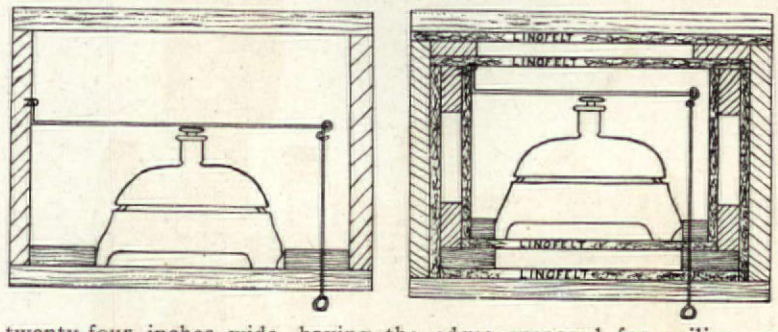
Syracuse Corner Block Factory

SYRACUSE, - - N. Y.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

The city building, as well as the farmhouse, must be protected, the large schoolhouse in the city needs insulation no more than the barn or stable in the country. It is a well-known fact that cows will give more milk on less feed when kept in a warm barn. A garage must be kept warm to prevent the radiator from freezing, and it is almost impossible to start a motor when the gasoline is chilled.

The Union Fibre Co. of Winona, Wis., are manufacturing the insulating material known as Linofelt, particularly adapted to the work mentioned above. Linofelt is a quilt used for building purposes, composed of a filler of chemically treated flax fibres, quilted between two sheets of building paper. Waterproof paper, asbestos paper, and other coverings are furnished for particular uses. Linofelt is regularly finished in two styles, the first consists of rolls three feet wide containing two hundred square feet to the roll. For placing between studding, a special form is used either sixteen or



twenty-four inches wide, having the edges prepared for nailing or fastening to the studs, thus furnishing a substitute for back plaster.

To determine the efficiency of Linofelt for sound proofing, a well known architect who seldom takes things for granted, made the test boxes shown below.

Two small wooden boxes alike in every particular were constructed, both containing bells, the familiar kind which are sounded by striking buttons attached to the clappers. A lever with a wire extending through the bottom of the box provided means for ringing the bell. One box was made of wood only; the other lined inside with two layers of Linofelt tacked lightly to strips.

The bell in the box without Linofelt could be clearly heard when the wire was pulled, nearly as far as though the bell were unconfined. The bell in the second box could not be heard more than two feet distant.

Linofelt is kept in stock in all the large cities and the manufacturers, the Union Fibre Co. of Winona, Wis., will be glad to send any additional information regarding the use of their material. The catalogue mentioned above is well worth close study to anyone interested in making their homes more livable, as it shows how the material can be applied to both old and new buildings.

ECONOMICAL VENTILATION.

Pure air as conducive to health and happiness, needs no explanation. Even in spring and summer, rainy and cool days necessitate window closing to the discomfort of many homes, offices, stores and school houses.

The Ideal Manufacturing Co. of Erie, Pa., are making a simple, yet perfect ventilator, which has all the advantages of the large, cumbersome and costly devices previously on the market. It is handsome, easily installed, free from the defects of the ordinary ventilators, and is very effective in operation.

That the readers of the National Builder may be acquainted with this excellent ventilating device, the Ideal Manufacturing Co. is making a special price for June inquiries. It will be saving money to investigate.

WOODWORKING MACHINERY.

No. 713 of The Mechanic, the house organ of the H. B. Smith Machine Company, Smithville, N. J., is of considerable interest to users of wood working machinery. Particular attention is shown in this number of their No. 107A extra heavy nine-inch outside molding machine. This machine is built for the heaviest work, planing 9 inches wide on material 12 inches thick. Many devices for accurate work and safety are found on this machine.

We understand that the H. B. Smith Machine Company will send this magazine free to interested parties.

NOVO ENGINES.

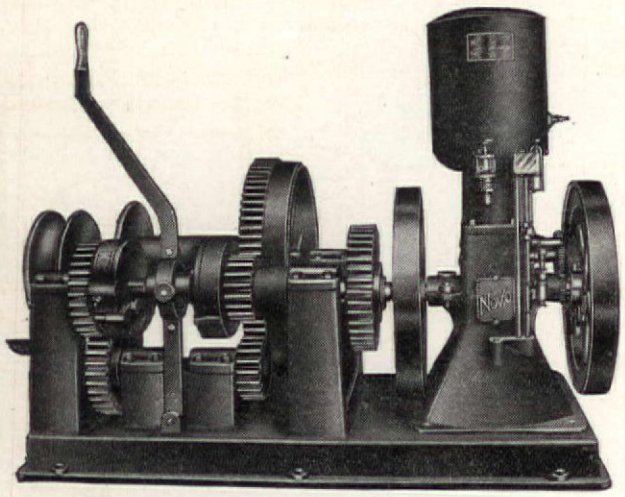
Scarcely a building is erected in which a pump is neither used during construction nor installed as a part of the permanent plant. During the construction there are springs sometimes met with, frequently a water main or sewer breaks and floods the excavation, and the use of a pump at such times alone frequently pays for itself many times over in the lives and property saved, as well as the saving in time during construction. Under the high-speed requirements of modern construction, handling the water is among the ordinary risks connected with the contract, and the contractor must be prepared for emergencies when a pump is the only solution.

As the height of buildings increases, the contractor must provide means to get his material to the upper floors. Steam hoists have been tried, but the high speed necessary soon shakes the outfit to pieces. Electric hoists are ideal for many places, but the current cannot always be obtained. Gasoline hoists possess many advantages over other forms of power. Their horsepower is high for the weight of outfit, while their speed is high and adapted to intermittent use. When the contractor has a small shop it is imperative to have power for his machines. Most woodworking machinery is run at high speed, making gasoline power ideal. It is intermittent, for which work gasoline is on an equal with electricity and hours ahead of steam.

On the farm water must be provided for the stock and should be ready for extinguishing fires. The combustible nature of many farm products, such as hay, straw, grain, etc., renders some protection necessary, but how often we see fine building destroyed when a few gallons of water would save them.

These are among the emergency requirements, it is true, but they must be met, and it is just as well to cut down the number of costly possible emergencies.

But there is a new danger confronting the farmer which will have a direct bearing on the high cost of living. The importation during the last few years of injurious parasites, insects, moths, etc., already costs this country millions of dollars annually. No one thing



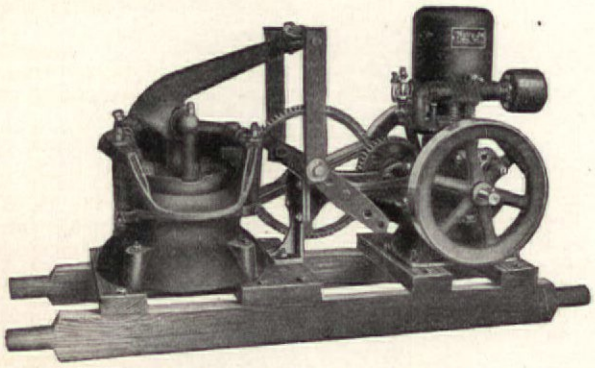
No. 1 HOIST WITH 5 H. P. NOVO ENGINE.

can help the situation as much as spraying with the various preparations known to be helpful. A proper pump for spraying is an investment which will mean saving many times its cost every year.

The Hildreth Manufacturing Company of Lansing, Mich., claim that in the NOVO they have perfected the small gasoline engine. Three sizes only are made, from two and one-half to five horse power, and by concentrating their efforts on these sizes they are able to produce what they claim to be the simplest, most reliable and satisfactory engine on the market.

The NOVO is the result of years of study and experiment, based on sound, well-established principles, and combining the best features of modern practice. Space prevents more than a brief statement beyond the fact that the motor is built for hard, consistent and continuous work, on any of the work mentioned above, as well as running cream separators, pneumatic water systems, cement mixers, feed grinders, and all light farm and contracting machinery. The engine above is self-contained, a complete power plant, ready to set up at any time or place, and needing no pipe, tank or fittings.

One of the novel features of the construction of the NOVO is the manner of cooling. Only a small amount of water is used, obviating the necessity for tank or fan. The engine can be left out all winter without danger from the weather.



CONTRACTOR'S DIAPHRAGM PUMP WITH NOVO ENGINE.

For the purposes mentioned above the NOVO can be obtained in the engine only or connected with any of the machines mentioned. For the common purposes, such as hoists, pumps, etc., the base is made in one piece, making the entire engine self-contained. For general use, such as contracting, the value of this feature in portability is apparent. We are able to show two forms of this novel engine, and the manufacturers, the Hildreth Manufacturing Company, Lansing, Mich., will be pleased to send their catalogue or other desired information upon request. Users of small power machines should investigate this engine.

To Mark Tools

Coat the tools to be marked with a thin covering of wax, hard tallow, or paraffine by warming the tool slightly and rubbing the wax over the surface until it melts. Allow it to cool and make the desired marks with a sharp instrument such as a scratch-awl or needle point set in a handle. Now, pour on nitric acid, which will quickly etch the desired design. As soon as the marks are deep enough, wash off the acid and warm the tool until the wax melts and can be wiped off.



Learn to Fill BIGGER SHOES!

Don't be satisfied with merely pushing a saw and driving nails Be a *master* of your craft. Learn to *plan* as well as to work—to use your *brain* with the *same skill* that you use your hands.

Learn to fill a *big-salaried* job—the kind of a job that hundreds of other men, with no more natural ability than you, are filling with ease and success.

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You can *master every detail* of your line of work, *every branch* of building construction, *every angle* of architecture and carpentry—can do it in your spare moments and at almost no expense at all. You can have the knowledge and experience of over *four score experts* at your command, ready for instant use whenever you want it—can fit yourself to *fill any first class position above you that you desire*—simply by allowing us to place in your hands this great ten volume set *without your sending us one cent in advance.*

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is the most exhaustive, comprehensive and *practical* work on the building trades that has ever been published. It covers *every detail* of building construction from common carpenter work to reinforced concrete and steel; from masonry to heating and ventilation; from specifications and estimates to building laws and superintendence. It covers all the *practical* things that you *want* to know, all the things that you've *got* to know if you're going to be a success. It contains over 3,000 drawings, full page plates, diagrams, etc., has 4,670 pages, is bound in handsome half morocco and printed on special paper in large clear type—10 massive volumes—titles engraved in 23 karat gold. No *carpenter, contractor* or *building owner can afford to be without it a single day.*

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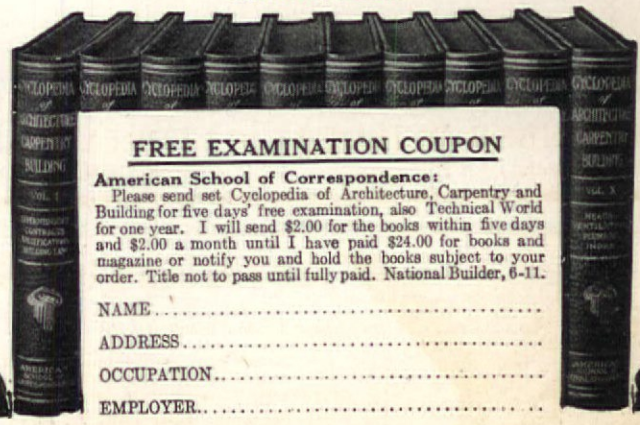
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With Its Back to the Wind and the upward sloping opening in the back taking the full force of the wind, the Iwan Volcano Revolving Chimney Top makes a sure draft on the chimney.

Mountings can be bought separately and the hood and vane can be made in your shop according to patterns furnished free with all iron mountings. Sizes 6 to 12 inches.

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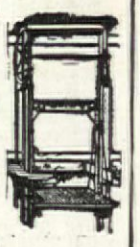
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State your requirements, giving capacity, size of platform, Lift, etc., and we will name a money saving price on your exact needs. Write today.

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Improved Quick and Easy Rising Steam Electric and Hand Power Safety

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1000 Pounds Easily Carried on THE ASHLAND Folding Scaffold Put up with Four 10d. Nails.



Strongest and Best Bracket made. Instantly adjustable to any spaced studding or pitch of roof. Can be used on any kind of siding. No pins or bolts used in adjusting. No boring holes in siding. Saves time and money on every job. Special Discount for First Order in Each Locality. Write for Circular N and Prices.

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Have increased holding power on account of the corrugated ribbed exterior surface.

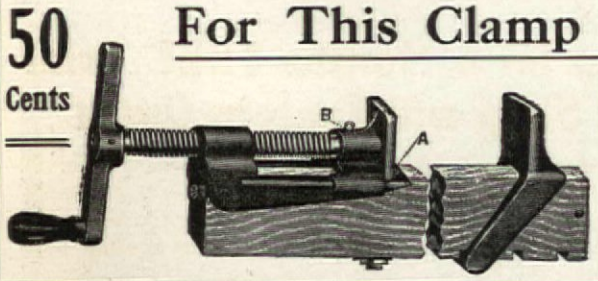
Securely clamped together without the use of springs or wires.

A better shield at the same price.

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90 West Street, corner Cedar, - - - NEW YORK

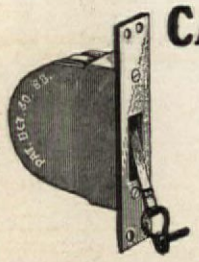
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CALDWELL SASH BALANCE

Does away with weights and cords and VASTLY more durable.

Makes sashes work perfectly.

Permits greater window space in new work, as box frames are not necessary.

May be applied to old windows without altering sashes or frames.

Write for circular to the

Caldwell Mfg. Company, 2 Jones Street Rochester, N. Y.

UTILITY WALL BOARD.

Wall board offers many advantages over other forms of lining and finishing buildings. While many of these are apparent to the readers of the NATIONAL BUILDER, there are some things about Utility Wall Board which appeal to special lines. The writer was looking over the latest catalogue of the Heppes Company while on a train. When the page showing a garage came up, a fellow passenger exclaimed: "That's just what I've been looking for. I want to line my garage, which is of sheet metal, and that is the first thing that looks like it would do the work." In a building of this character the heat of summer must be kept out as well as the cold of winter. It is in such places that Utility Wall Board is especially valuable.

In the stables and barns, as in the garage, wall board is of great value. Being windproof as well as waterproof, it adds greatly to the comfort of the live stock. Most especially, the harness, carriage and feed rooms should be lined for protection from dust and dirt.

But not alone in the stables, garages, and outbuildings is the board available. Every room in the house is better for a lining of this character. So many are the advantages that we can only refer to a few, leaving it to the practical readers of the NATIONAL BUILDER to find more ways in which to use this excellent material.

The billiard room has always been a place of interest to the builder. When the walls are plastered there is danger of damage from cues, chairs, etc. Wainscoting is expensive, while wall board takes the place of both, as it can be panelled to represent burlap or other finish, and its tough, fibrous composition renders damage extremely unlikely, and repairs easy.

Attic rooms usually have so many corners and angles that their finish is the despair of the plasterer, unless the arrises are covered to hide the crooked lines. The naturally plain surface of Utility Wall Board allows its use here to perfection, and a small amount of panelling gives an artistic finish to an otherwise unsightly room.

How many times we see the laundry tucked away in a corner of the basement where the rough walls and unfinished ceiling do not add comfort, if indeed they do not injure the clothes. An ideal laundry room built in the basement and lined with Utility Wall Board will please the women folks. When given two coats of oil paint, the walls are proof against steam and moisture.

Every room in the house has its use for Utility Wall Board. In the living room an artistic effect can easily be obtained by using Utility Wall Board for side walls and ceiling, with box ceiling beams and side wall panel strips stained with mission stain, the panels painted to harmonize with the finish of the woodwork. By stippling, a burlap effect can be obtained and, in fact, the decorator has the widest range in selecting the finish, as the board takes either oil or water colors readily.

For bedrooms, it is customary to fill the joints between the sheets with Utility Paste Filler, when it presents a perfectly smooth surface for painting or papering.

When we come to the bathroom, our preference is really for tile, isn't it? But when we learn the cost we decide we will find something cheaper. Utility Wall Board readily lends itself to sanitary finish, as an enamel finish can be easily applied, which will permit washing the walls as often as required. The peculiar composition of the board makes it efficient as a sound retarder, so that the noise of running water is seldom heard outside the bathroom.

Among the advantages of Utility Wall Board is its easy application. A novice can apply it over plaster or other finish, or can nail it directly to the studding. The variety of sizes in which it comes makes it possible to order sheets to cut to advantage, thus utilizing almost every square foot of it. Contrast this to the rubbish left by the plasterer. An ordinary workman applies the board much faster than a lather can prepare the walls for the plasterer, and the work is finished without the delay in time, the cost or annoyance due to the wet plaster.

To guide the intending purchaser, the Heppes Company, 4518 Fillmore St., Chicago, will send their complete catalogue relative to their products. Complete instructions for measuring are given, and it is well worth having this information on file.

FARM AND SHOP POWER PLANTS.

In this age of machinery every effort is being made in industrial lines to reduce the lines of labor of both man and beast. So much so, that the term "horsepower" is almost a misnomer and a quasi-mythical term handed down to us from the ages before mechanical power became a possibility. In factories, both large and small, little attention is paid to hand labor, and only the most delicate adjustments are left for the skill of the hand and eye of the trained workman.

In the smaller shops, there is still considerable dependence on hand methods, but here, too, the power machines are rapidly filling the place of hand and foot power machines.

On the farm mechanical methods are applied to many operations heretofore left to nature. Cream is separated from the milk as soon as milked, instead of allowing it to rise in the old fashioned way. Ice is made by machine when wanted, instead of being cut when the weather permitted. The reaper and harvester have taken the place of the scythe and sickle, even as the threshing machine replaces the threshing floor and the flail.

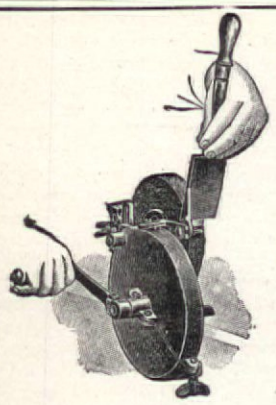
In arid and semi-arid districts, the crops are watered when they need it, thus supplementing the natural rainfall, and even replacing it entirely. Many districts blossom in almost tropical verdure under mechanical irrigation.

It is but natural, therefore, to seek the best power for use in these many places. Handwork is too slow and laborious, animals are not sufficient to do all the work, the steam engine is cumbersome and cannot be easily transplanted, besides requiring expert attendance all the time. Electric motors require current from outside sources, making the service costly, and so the mind naturally turns to the gasoline engine. This motive power possesses the qualities of portability, small weight for high power and speed, low cost of operation, always ready for instant use, adaptable for any purpose within the range of its power, and needs no expert engineer to operate it successfully.

Foremost among the manufacturers of gasoline engines for power on the farm and in the small shop, we find Schmidt Bros. Co.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

6 MONTHS FREE TRIAL



Special Offer on Shop and Factory Outfit

We want every carpenter, every shop, factory, contractor and tool-user to try this grinding, buffing and polishing outfit for six months free—a whole half year for you to find out how this perfected genuine Carborundum grinder saves tools, saves time, and earns money for any shop, factory or individual tool-user. We want you to prove these facts on your own tools. The whole half year's use will cost you nothing. Try it free for 6 months is what we ask and prove it is a big money-maker for you. Then send it back, if you wish—no hard feelings if you do. Send back the coupon at the bottom of this page for our 6 months' free trial offer.



Luther Diamond Tool Grinder

25 Times Faster Than The Grindstone—6 Times Faster Than Emery Wheels

The wheels of this grinder are genuine Carborundum. Nothing is so hard as Carborundum except the genuine diamond. Wheels actually made of genuine diamond would cut no faster. In reality Corborundum crystals are artificial diamonds, made by fusing the elements of real diamonds in the electric furnaces at Niagara Falls, in which fire brick melts and runs like butter. In this *utmost* heat, Carborundum crystals get a temper and sharpness that cuts hardest steel or toughest malleable iron as emery does copper. Carborundum wheels do not glaze—they peel steel away in tiny shavings at lightest touch—no hard pressure necessary, no frictional heat, no water cooling necessary, no danger of drawing temper. Genuine Corborundum wheels do not get soft in spots, wear lopsided or glaze. They will outlast any number of emery wheels, saving that much money. They make it so easy to keep tools keen and bright, that tools are kept that way, and that means more, faster and easier work. They will not draw temper and tools last longer, which means another saving—to say nothing about the time saved in sharpening. But don't take our word—prove these facts by a half year's free use of this splendid outfit.

11 TOOLS IN ONE

This special offer on our shop and factory grinding, buffing and polishing outfit is a remarkable value—the greatest reasonably priced grinder offer ever made. This outfit, on which we will make a 6 months' free trial offer, consists of one Mechanic's Special Luther Diamond Tool Grinder with the following accessories;

1. One Rough Genuine Carborundum Wheel
2. One Fine Genuine Carborundum Wheel
3. One Chisel Grinding Attachment
4. One Twist Drill Attachment
5. One Polishing Spindle
6. One Buffer
7. One Polisher
8. One Oil Stone
9. One Carborundum hone in leather case
10. One Carborundum scythe stone
11. One foot power attachment

This outfit supplies every grinding, buffing and polishing need. The chisel and twist drill attachments make it easy for inexperienced persons to sharpen drills and chisels correctly.

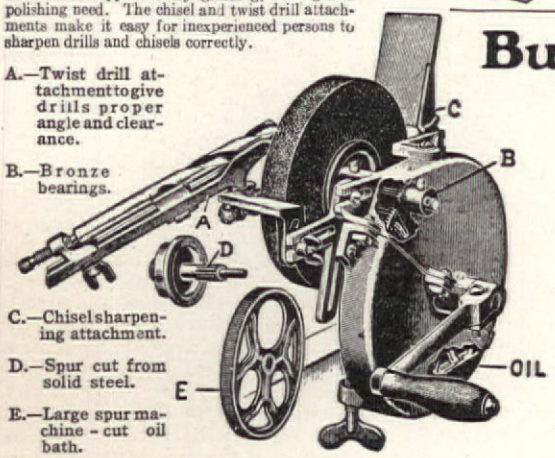
A.—Twist drill attachment to give drills proper angle and clearance.

B.—Bronze bearings.

C.—Chisel sharpening attachment.

D.—Spur cut from solid steel.

E.—Large spur machine-cut oil bath.



Built Like a High Grade Lathe

The Luther Mechanic's Special, forming the basis of this Special shop and factory outfit, is built for a lifetime of service—has steel and malleable construction, dust-proof, bronze bearings, machine cut spur gears, bearings run in oil bath—speed 2,500 revolutions per minute. Carborundum wheels guaranteed 5 years.

Read what others say

Elmwood Haynes, of the Haynes Automobile Co., says: "I have found your machine a very satisfactory device."

Most Practical Grinder Made

I received the Carborundum Grinder and am highly satisfied with it. I consider it the best and most practical all-purpose machine so far manufactured.
ALLEN STOODLEY, Goldfield, Nevada.

The Best Grinder

I am well pleased with your grinder. It is the best grinder we have around here.
E. N. EARLES, Beallsville, Ohio.

What Neighbors Say

Your grinder does everything you claim for it and more too. I have shown it to my neighbors and they say it is one of the finest things they ever saw.
LEW KNUSTON, Leland, Ill.

Just As Represented

I have just received the grinder and find that it is just at represented. I am very well pleased with it.
C.H. THOMPSON, Cheyenne, Wyo.

Return this Coupon for 6 Months FREE Trial Offer on Special Shop and Factory Outfit

By returning this coupon you will not put yourself under any obligation whatever. We will send you full details of our Six Months' Free Trial Offer, and full description of this splendid grinding, buffing and polishing outfit, also the reprint from McClure's Magazine telling the interesting story of the discovery of Carborundum. Everything we send is free, and puts you under no obligations. If you want to increase shop production, save time, or make your work easier, let us tell you about this grinder.

Send back the coupon today.

LUTHER GRINDER MFG. CO.
55c Madison Street - - MILWAUKEE, WIS.

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Please send me free and prepaid your free Carborundum booklets and 6 months' free trial offer on special shop and factory outfit.

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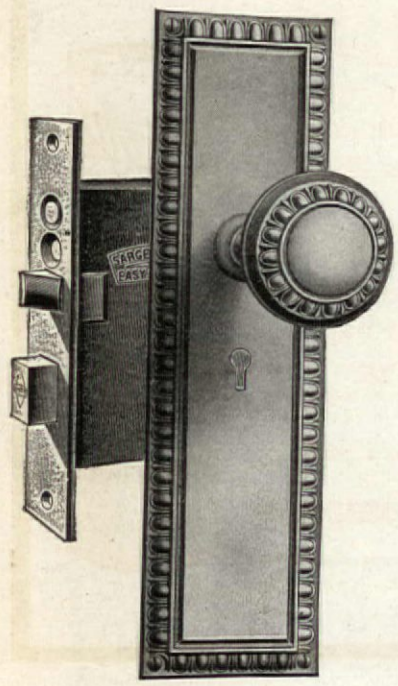
PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

Engine Works of Davenport, Iowa. In their latest catalogue and price list are shown many of the conditions when a motor of this character is well nigh indispensable. The novel points of construction make it especially valuable for places where the use is intermittent and where unskilled parties must operate it. The manufacturers claim that owing to its simplicity and reliability, this engine is particularly adapted to farm use for churning, separating, sawing wood, cutting fodder, etc., and can be easily rigged up to run a small woodworking shop.

The catalogue is well illustrated and contains prices and the liberal terms on which the engine is sent for approval. On request from the readers of the NATIONAL BUILDER they will send the engine for ten days' trial before the first payment is made. But send for the catalogue and see for yourself how much labor can be saved by this little machine.

FRONT DOOR SET.

The Rehm Hardware Co., 1502 Blue Island Ave., Chicago, state that they are having quite a demand for their 5308 Front Door Set, which is shown here. The lock of this front door set has a cast bronze metal front, antique copper finish, 5-16 swivel spindle hub, bronze metal bolts and steel keys. The latch and dead bolt are operated by one key. The knobs and escutcheons are wrought bronze metal, antique copper finish.



Special attention is called to the fact that the night latch and the dead bolt are operated by one key. This is something quite new and will be greatly appreciated by the property owner. This front door set will add greatly to the fine appearance of any door or room. While the knobs and escutcheons of this set are wrought bronze metal, and everything else about it is of the highest class, yet the price is exceedingly reasonable

The Rehm Hardware Company will be glad to quote prices on either a few sets or a complete bill for builders' hardware for any residence or building. They carry a very large stock of fine builders' hardware, make prompt shipment and endeavor in every way to give their customers the best values for their money.

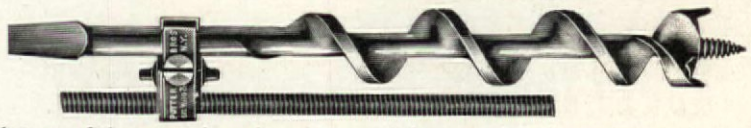
BURMITE ROOFING FOR IMPORTANT BUILDINGS

Bermingham & Seaman Company, with general offices at 1208 to 1226 Tribune building, Chicago, Ill., is meeting with a very gratifying demand for its Burmite material for roofing and siding, some of the most important buildings recently erected or under way in the northwest making use of this material as a roof covering. The utility of a high-grade prepared roofing for buildings of all kinds, and for roofs, whether flat or steep, appears to be well established. In addition to its cheapness, some of the advantages of a first-class rock-surfaced roofing are that it is not affected by climatic changes, nor by storms of wind, ice or hail, all of which are more or less destructive to roofs in general. Some of the important buildings roofed with "Burmite" include the Pioneer Press office building, a modern 18-story skyscraper which is regarded as one of the finest in St. Paul, Minn.; the warehouse of the W. J. Hoy Construction Company in the same city; the recently erected $250,000 St. Charles Hotel at Pierre, S. D.; the mammoth new lumber shed of the McMahon Lumber Company at Fergus Falls, Minn.; many of the depots of the Minneapolis, St. Paul & Sault Ste. Marie Railway; the warehouse of the Nicholas & Shepard Company at Fargo, N. D.; the new factory of the Towle Syrup & Refining Company, St. Paul, and many others.

THE PEERLESS FLEXIBLE BIT GAUGE.

When boring for mortise locks, dowels, etc., it is necessary to use great care not to bore too deep, as one unnecessary turn may strike a nail, cut through the stile or weaken the door. Many of the devices for gauging the depth of the hole are unreliable on account of springing, slipping or scraping, marring the work, etc. Others are limited in their range and will not permit of boring the full depth of the bit.

By the use of the Peerless Flexible Bit Gauge, the manufacturers, Messrs. Potter Brothers, 612 W. 110th street, New York, claim the



chance of damages is reduced to a minimum, while it will allow boring with any bit or twist drill to within three-quarters of an inch of the chuck of the brace. As there are so many places when this attachment, which can be put in any bit in an instant, can be used to advantage, every carpenter and woodworker should have one. While your dealer probably has the PEERLESS in stock, should there be any trouble finding it, write to the manufacturers at above address.

WOOD DISTILLATION.

The annual federal report on the statistics of forest production says that during the year 1909 there were consumed in the United States in the processes of wood distillation 1,256,157 cords of wood by 147 plants, as against 977,844 cords by 131 plants in 1908 and 1,282,120 cords in 1907 by the same number of plants.

The wood-distillation industry is concerned with the manufacture of such products as result from the heating of wood so as to produce volatile distillates and solid residue. Two distinct processes of manufacture, known, respectively, as the destructive process and the steam process, are in general use. In the former the wood is heated to such a temperature that the fibre is destroyed and new products are formed. In the latter the volatile substances are removed from the wood by treatment with steam, which does not destroy the fibre. Each process is modified to some extent for special uses.

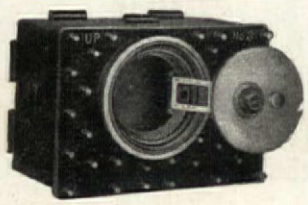
The wood-distillation industry is naturally divided into two branches, "hardwood distillation" and "softwood distillation," and the statistics are presented separately for each class. With few exceptions, the establishments engaged in the former are confined to the Northern and Central states, chiefly Michigan, New York, and Pennsylvania, while the latter branch of the industry is located principally in the South Atlantic and Gulf states, especially Alabama, Florida, and Georgia.

Thirty-one establishments were reported as engaged in softwood distillation in 1909. Though the distribution according to states has changed greatly in the past three years, the total number is the same as in 1907 and only one more than in 1908.

Softwood distillation as an industry is still to some extent in an experimental stage. A number of the processes which have been tried have not proved uniformly satisfactory, and consequently estabishments have been abandoned or removed to more suitable localities. The total value of all the products of distillation amounted to $8,328,484, of which the value of charcoal was $3,509,019; wood alcohol, $2,082,253; other products, $2,637,212. These last products include tar, turpentine, oils, and pyroligenous acid.

The city of Yonkers, through its common council, has appropriated $10,000 for mural decorations in the council chamber of the new city hall, and in order to obtain these paintings the Honorable James T. Lennon has appointed as Art Commissioners, Rudolph Eickemeyer, Jr., G. Howard Chamberlain, and Charles H. Israels. For this purpose the Art Commission is instituting a public competition, for which competition a copy of the program may be obtained from the Art Commission of the city of Yonkers, care of James V. Mahoney, Board of Contract and Supply, City Hall, Yonkers, N. Y.

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It makes your Valuable Papers, Jewelry and Silver secure against Porch Climbers, Petty Theives, Fire, etc.

No Home or Apartment House complete without one. It has a combination lock.

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Workers in Art Glass and Mosaics.

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PREMAX **PREMAX SASH CHAIN** Made of the best open hearth steel—is in every way reliable PREMAX

Made in three thicknesses of link, in bright steel, or in electroplate of copper, brass or nickel.



Manufactured Exclusively by
NIAGARA FALLS METAL STAMPING WORKS
NIAGARA FALLS, NEW YORK, U. S. A.

Niagara Sash Pulleys, Steel Sash Fixtures. If you are not handling our line, it will pay you to get Catalog B.

15M

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

Amatite ROOFING

Why the Buyer of Amatite Never Complains

WHEN a man buys ordinary ready roofing he usually neglects to paint it and after three or four years he comes back to the dealer with a protest. It is human nature to neglect painting roofs.

When a man buys Amatite Roofing he lays it on his building and in three or four years it is still as good as new and does not need any paint. He forgets he has such a roof but no harm is done by that.

There is nothing to neglect in the case of Amatite. Amatite has a peculiar surface—a sort of plastic concrete made of pitch and mineral matter.

This surface is plastic enough so that the material can be rolled up into handy rolls in the usual manner and handled just like any other ready roofing. When unrolled on the roof and nailed down it presents to the weather a continuous surface of mineral matter and pitch. On this surface wind, rain, storm, heat and cold have little effect. Year after year it looks up to the sky undisturbed and unaffected. It costs nothing to maintain and relieves the owner from all responsibility.



Dealers can improve their business by selling Amatite and buyers make a good bargain when they buy it. The price of Amatite is less than that of most painted roofings of less weight and durability.

Sample free on request. Address our nearest office.

Barrett Manufacturing Company

New York Chicago Philadelphia Boston St. Louis Cleveland Pittsburg Cincinnati Kansas City Minneapolis New Orleans Seattle London, Eng.

The Carey Roof Standard

CAREY'S FLEXIBLE CEMENT ROOFING

To Prove to You

the high, standardized construction and composition of Carey's Roofing, we want to send you

Booklet and Sample FREE

and give you practical information regarding Carey's Roofing based on 25 years' actual time-proved tests. Carey's Roofing is equally adapted to flat or steep surfaces, wood-sheathing, tile or concrete. Whether your contract is large or small, we want to show you the advantage of using a standardized roofing material.

THE PHILIP CAREY MFG. CO.

59 Wayne Avenue, Cincinnati, Ohio 50 Branches

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LUMBER

You Save Half-a-Dozen Profits

Our DIRECT selling plan has solved economy for the man who is going to build. No more exorbitant high prices to pay—Buy Lumber DIRECT from the Timber Country. We have no road-men—no commissions to pay—no retail yards—nor the expense of handling several times. Thus we save YOU the middlemen's profits—several of them. Your money is as good as the big wholesalers' or retailers' if you ship in car lots, and the biggest part of the Lumber sold in your locality comes from this territory. Send for our Lumber Price List.

ESTABLISHED 1894 **SHAW-WELLS CO.** SPOKANE, WASH.

SHAW-WELLS CO.

SPOKANE, WASH.

Address DEPT. L

Please send prices on

Lumber, Sash, Doors and Mouldings

To.....

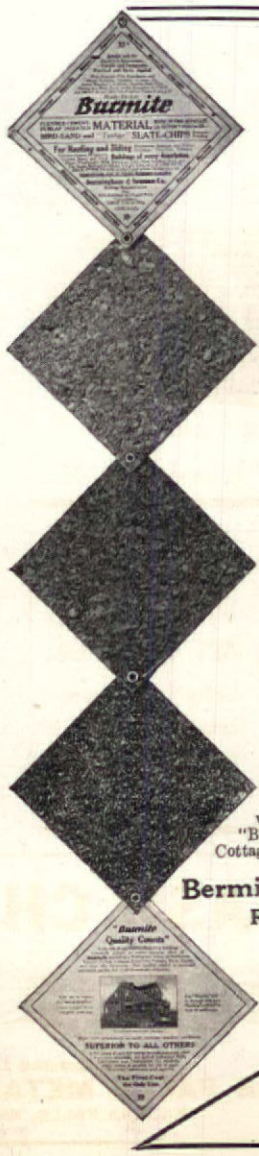
City.....

State.....

Don't be afraid of the freight.

CARLOAD RATE ON LUMBER **SPOKANE** to

Chicago	52c	per 100
Kansas City	47c	" "
Fargo	37c	" "
Denver	33c	" "
Philadelphia	85c	" "



These Samples are Sent Free

—write for them

Everybody interested in a Material for Roofing and Siding Buildings should have them, because they show exactly the reasons for the great success of

READY TO LAY

Burmite

Reg. U. S. Pat. Off.

FLEXIBLE-CEMENT BURLAP INSERTED **MATERIAL for Roofing and Siding**

These samples are not cut from material made up especially for advertising purposes, as is so often the case—they represent the exact weight, lasting qualities and artistic appearance of "Burmite" as it goes out from our plant every working day of the year, in the two separate surfaces, i. e.,

Roof Insurance for 15 Years

Recognized and acknowledged to be the most Durable, Practical and Inexpensive for use on Buildings of any kind of construction. **Guaranteed for 10 years without Coating,** and if properly laid will last from 20 to 25 years. **"Burmite" lasts longer than shingles—costs less, lays smoother, looks nicer and requires no paint to preserve it. Can be laid over old shingles or tin;** is odorless, will not "run" on steep roofs; and on account of its unusual flexibility, is especially well adapted to flat or uneven surfaces, used in any climate, can be applied in cold or hot weather without danger of buckling, expanding or contracting. WRITE TODAY for Samples and Booklet, "Burmite Quality Counts," illustrated with buildings printed in colors showing beautiful effects of "Burmite" applied as a Roofing and Siding on Residences, Cottages, Summer Homes, Bungalows, Garages, Barns, etc.

Berminghan & Seaman Co.

Roofing Mfrs.

Tribune Bldg.

Chicago

Request for Samples and Literature of BURMITE from

Name.....

Street..... City..... State..... N. B.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.



No Rubbing Needed for a Beautiful Flat Finish

Johnson's Flat Wood Finish, applied with a brush, produces the soft, velvety effect of the hand-rubbed finish at one-third the cost for labor. All that is necessary to obtain this beautiful flat finish on any woodwork, new or old, is to brush on a coat of Johnson's Flat Wood Finish. It dries in an hour without a suggestion of gloss.

Architects, contractors, Painters and Home Owners everywhere are enthusiastic over the results obtained with it and the big saving it makes possible.

Johnson's Flat Wood Finish

is a liquid—an easy spreading preparation—manufactured especially for finishing interior woodwork of new residences and buildings—as well as furniture—and equally valuable for refinishing old surfaces.



This flat wood finish opens a new field for the painter. He can now give his customers the beautiful, artistic, flat, hand-rubbed effects that have always been so high-priced on account of the labor—at prices that are within the reach of everyone.

By the use of Johnson's Flat Wood finish, you can make figures on hand-rubbed effects that will land the contract every time—give your customer perfect satisfaction and make you a good profit besides.

For giving this rubbed effect to new woodwork, apply Johnson's Flat Wood Finish over Wood Dye, Paste Wood Filler, or Varnish—for old woodwork or furniture having a gloss or varnish finish, simply apply a coat of Johnson's Flat Wood Finish. It is not necessary to remove the old finish before applying the new—and one coat *thoroughly brushed in* is sufficient.

Prices of Johnson's Flat Wood Finish

Gallons	$3.00
Half Gallons	1.60
Quarts	.85
Pints	.30

One Gallon is sufficient for 500 square feet

FREE Let us send you free a test can of Johnson's Flat Wood Finish and a copy of our Instruction Book. We want every painter—you—to know all about this most important development in wood finishing materials. We will send you a free sample so you may try it yourself at our expense and be convinced. Write today or fill out coupon for sample of Johnson's Flat Wood Finish and panels of wood finished with it.

COUPON
for free samples of Johnson's Flat Wood Finish and panels of wood finished with it

Name .....

Address .....

Street and Number NB-6

S. C. Johnson & Son, Racine, Wis.

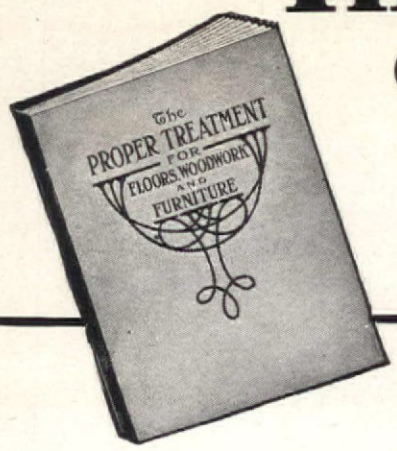
The Wood Finishing Authorities

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

Instruction Book

On Wood Finishing and Generous Samples FREE

To Painters



WE HAVE just gone to the expense of publishing a hand-book on Wood Finishing especially for our painters. This Instruction Book gives full information about finishing all wood—soft or hard—old or new. There is no point it does not cover. It tells you just how much material you will need for any work so that you can easily figure out your estimates.

We want a copy of this Instruction Book in the hands of every progressive painter. Write today for your copy which we are holding here for you. Remember we will send it absolutely free and postpaid. You are placed under no obligation whatever.

We will also send you FREE samples of JOHNSON'S WOOD FINISHES. After you have tried our brand we know that you will never use any other, for our wood finishes will ALWAYS give your clients satisfaction—you will never have a dissatisfied customer if you finish all of your work with "Johnson's" standard finishes.

Johnson's Wood Dye

is made in 15 popular shades as follows:

No. 126 Light Oak
No. 123 Dark Oak
No. 125 Mission Oak
No. 140 Early English or Manila Oak
No. 110 Bog Oak
No. 128 Light Mahogany
No. 129 Dark Mahogany
No. 130 Weathered Oak
No. 131 Brown Weathered Oak
No. 132 Green Weathered Oak
No. 121 Moss Green
No. 122 Forest Green
No. 172 Flemish Oak
No. 178 Brown Flemish Oak
No. 120 Fumed Oak

Gallons $3.00—Half Gallons $1.50

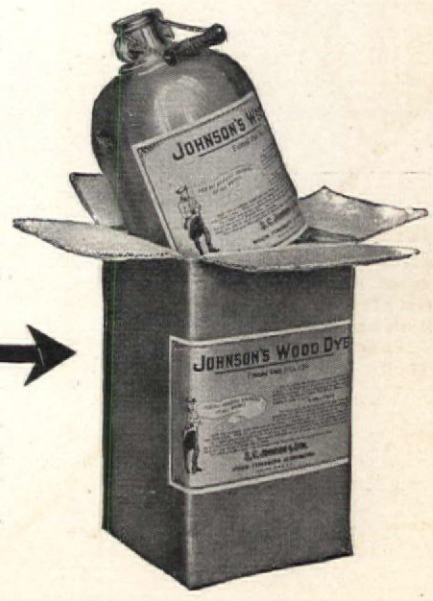
Johnson's Wood Dye penetrates deep into the wood fixing a deep, rich, permanent color which will not fade or rub off. It never raises the grain of the wood, and is very easy to apply, as it does not show laps and streaks even when used upon the softest woods.

Over the dye apply two coats of JOHNSON'S PREPARED WAX with a cloth and polish with a dry cloth or weighted brush. Prepared Wax gives that beautiful, lasting, artistic polish about which all of your customers are asking you.

GO TO YOUR LEADING PAINT DEALER for free samples of Johnson's Wood Dye and Prepared Wax. If your dealer hasn't the samples, write us for them, mentioning your dealer's name and the shade of dye of which you wish a sample and we will see that you are immediately supplied, free and postpaid.

S. C. Johnson & Son, [Dept. NB-6] Racine, Wis.

"The Wood Finishing Authorities"

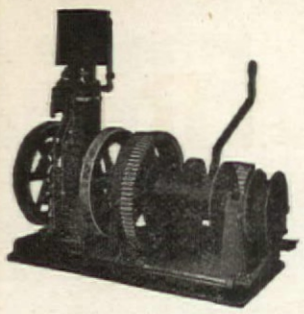


We show here an illustration of our new gallon and half-gallon package of Wood Dye. Both sizes are packed in a carton which can be safely shipped by express to all points. This package is very easy to handle. Unused material may be kept absolutely airtight in it.

Be sure to write us for free samples and the INSTRUCTION BOOK if your dealer cannot supply you.

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

Material Hoists



For Double Platform Elevators

SIMPLE, STRONG, DURABLE

The most economical method for elevating building material. Two sizes, 4 and 6 horse power.

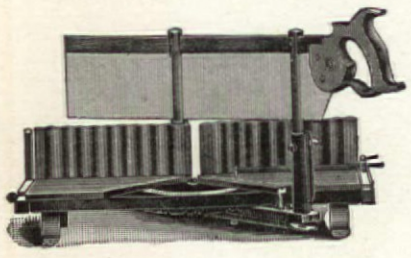
Contractors send for Bulletin No. 5 and get our proposition.

Also a full line of engines from 1 to 35 horse power.

Bates & Edmonds Motor Co.
1146 MILL ST., LANSING, MICH.

GOODELL MITRE BOX

Made of STEEL - Cannot Break
First in Quality and Improvements



Automatic Stops for holding up saw

Corrugated Backs. Graduated Gauge for Duplicate cuts and many other features

If you want the Best you will take no other

SEND FOR CIRCULAR E

GOODELL MFG. CO., Greenfield, Mass.

From an Economy Standpoint

STAR HACK SAW BLADES



FOR MACHINE USE 12 x 5/8

Surpass all other Blades. Eliminate carrying in stock Blades of varying widths and thicknesses with different numbers of teeth to the inch. They are made of the best material.

POSSESS GREAT STRENGTH AND DURABILITY.

Ask for and insist upon getting the Blade with the ★

ALL DEALERS KEEP THEM.

Write for leaflet.

MILLERS FALLS CO.
28 Warren St., NEW YORK

Our Big Furnace Book is Free



It tells all about the different systems of heating and explains the principle and contsruction of the

Jahant Down Draft Furnace

Send for this free furnace book today. See why the Jahant gives more heat from less fuel, is easily regulated and requires very little attention. The Jahant is sold direct ready for you to install with our set of free tools.

$10 Down and $10 a Month

buys the Jahant Down Draft Furnace with our legal guarantee to return your money after a year's trial if not satisfactory. That's the best and cheapest way to buy a furnace.

THE
Jahant Heating Co.
2 Mill Street, Akron, Ohio

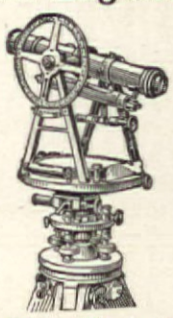
ST. LOUIS, MO. **BALTIMORE, MD.**

F. WEBER & CO.

1125 Chestnut Street. PHILADELPHIA, PA.

Draughting and Engineering Supplies

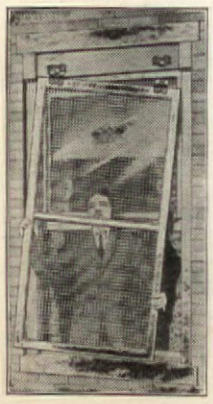
BUILDERS' TRANSITS and LEVELS
CALCULATING RULES



DETAIL DRAWING BROWN, BLACK and BLUE PRINT PAPERS

"UNIQUE" Direct Black Print Paper. The best on the market, requires only one bath. Samples and quotations sent on request
Write for complete catalogue vol. 300 B.

KEES BEATRICE



Hanging Screen from inside the building

KEES-GOSSETT DETACHABLE SUSPENSION HINGES

Try a pair to hang one of your own window screens.

After that you'll always use and recommend them.

Ask on your letter-head and we'll send a sample set free if you mention your hardware dealer.

F.D. KEES MFG. CO. BEATRICE, NEB
BOX 810



Screen swung out to wash windows

Full Line of Plumbing Supplies



Sold Direct at Wholesale Prices

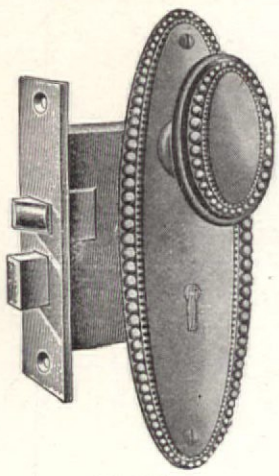
20 to 40 per cent Saving

Complete bath room outfits—tubs, closets, lavatories, kitchen sinks, etc. Prompt shipment from a complete stock. The only house selling up-to-date, guaranteed goods at wholesale direct. Write for illustrated catalogue and prices.

B. Y. KAROL, 768-72 W. Harrison St., Chicago, Ill.

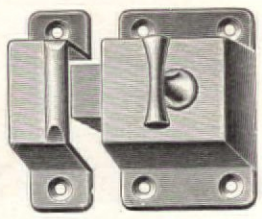
PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

We Can Save You Money
ON
BUILDERS' HARDWARE

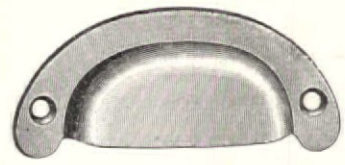


No. 5155

No. 5155—Inside Lock Set. Steel, Old Copper Finish. Per Set.....**$0.37**



No. 2436—Cupboard Turns, Wrought Steel, Old Copper Finish. Per dozen.....**$0.95**

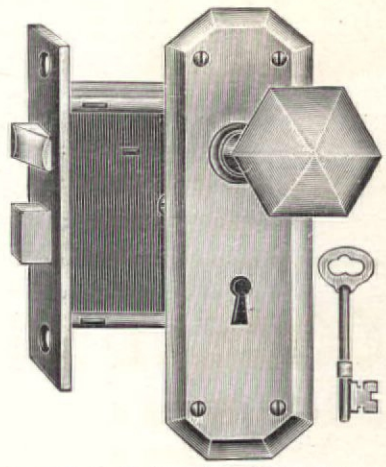


No. 8330—Drawer Pulls. Steel, Dull Brass Finish. Per Dozen.....**$0.22**
No. 2330—Drawer Pulls. Steel, Old Copper Finish. Per Dozen.....**$0.22**



1⅜ x 5 inches

No. 8383—Bar Sash Lifts. Dull Brass Finish. Price per Dozen.....**$0.50**
No. 1383—Bar Sash Lifts. Old Copper Finish. Price per Dozen.....**$0.50**



No. 5155—Inside Lock Set. Steel, Dull Brass Finish. Per Set.....**$0.56**

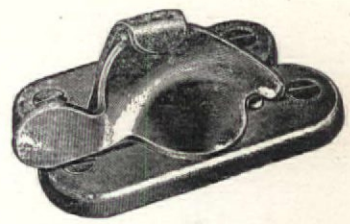


No. 2368—Sash Lifts. Wrought Iron, Old Copper Finish per doz...**$0.15**

FREE to Contractors and Carpenters our new Illustrated Catalog and Net Price List.

We do not sell to Contractors or Carpenters in Cook County, Ill.

REHM HARDWARE CO.
1503 Blue Island Ave., CHICAGO, ILL.



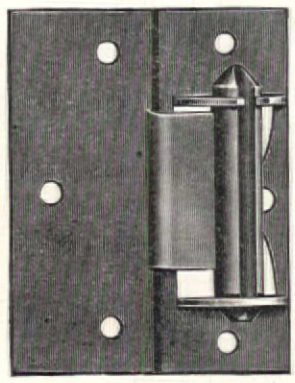
No. 5493—Sash Locks, Steel, Old Copper Finish. Per Dozen.....**$0.50**



Samson Spot Sash Cord

IS made of extra quality fine yarn, and warranted free from imperfections of braid or finish. It can always be distinguished by our trade mark, the Colored Spot. Carried by all dealers. Send for samples and tests.

Samson Cordage Works
BOSTON, MASS.



Diehl's Separable and Reversible Hinge No. 20

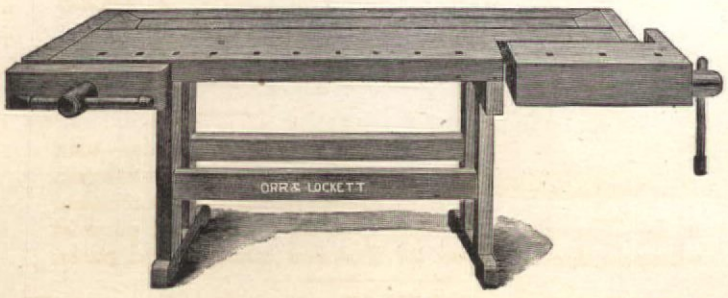
This hinge is designed for storm and screen doors. The door may be swung at right angles and lifted from its bearings without removing the screws, as the shank slides through the small slot in the upper ear so that it makes it very easy to change from storm to screen doors and from screen to storm doors without removing the hinges. Hinge No. 20 is made of open hearth wrought steel, 14 gauge, and finished in black baked japan or oxidized copper.

A Sample Set of Hinges will be sent upon receipt of 25 cents in stamps.

The Diehl Novelty Company SHEBOYGAN, WISCONSIN

Mention National Builder.

ORR & LOCKETT'S CABINET MAKERS' BENCH



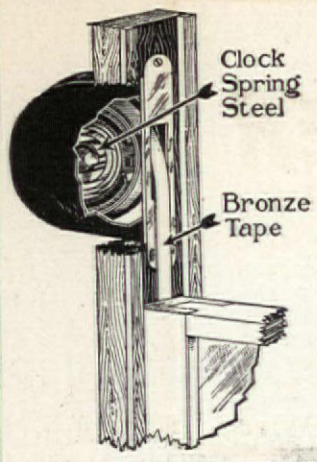
THIS illustration shows our regular Cabinet Makers' Bench. This bench is made entirely of maple. The top is made of 2¼ inch strips glued together to prevent its warping. The working top of the bench measures 78 inches long and 24 inches wide. We also make a smaller size, 66 inches long and 20 inches wide. These dimensions do not include the screws. **34 inches high.**

NOTE—We furnish with this bench our Continuous Screw, Rapid Action Roller Nut Vise. The simplest and best screw vise on the market. Jaws 10 inches wide, 4 inches deep, opening 12 inches.

Price of Bench including Vise.....**$14.00**

ORR & LOCKETT HARDWARE CO., 14-16 W. Randolph St. CHICAGO
Established 1872

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.



5,000,000 Pullman Sash Balances

In daily use and less than 100 repairs on all of them in a year. Do you know of anything that is used at all that wears as well? No more expensive than cords and weights, far more modern, neat and smooth working. Can be installed anywhere. Carry any weight window.

Sold by Dealers Everywhere
Send for Circular

PULLMAN MFG. COMPANY
10 Allen Street :: :: :: :: ROCHESTER, N. Y.

WHEN YOU GET TO **SASH CORD** USE
SILVER LAKE

And insist upon getting it from your dealer. To insure you against substitution, we stamp our name on every foot of our cord. Carried by all dealers.

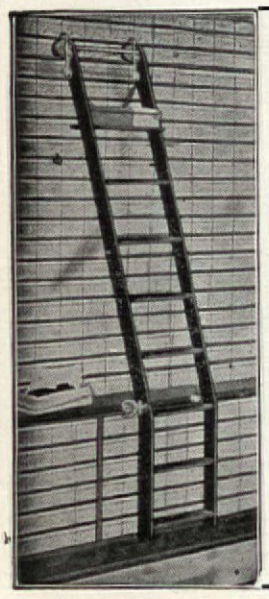


SILVER LAKE BRAIDED SASH CORD

Was originated by us, and for forty years has been recognized as—

THE STANDARD

Established 1869



Mr. Carpenter and Builder

Why Not Make Some Extra Money

by inducing your local merchants to modernize their stores? By doing so you will not only make money on selling them the **rolling ladders** that they may require, but also on the shelving that it may be necessary for them to extend to ceiling or rearrange.

It is only necessary to send us the measurements and we will do the rest. Ship you the ladders complete and ready for use and guarantee them in every respect to be satisfactory.

Write for Catalogue

MILBRADT MANUFACTURING COMPANY
1442 N. Eighth St., ST. LOUIS, MO.

LET US SEND YOU THIS BOOK FOR
FIVE DAYS FREE TRIAL

Send no money—just mail to us your name and address. Your book will reach you by return mail. Keep it 5 days—use it—then either send One Dollar or return the book.

Standard Handbook of
ESTIMATING DATA

Everg Man in the Building Trade needs it.

READ WHAT OTHERS SAY:
Your Standard Handbook is the best book of its kind ever written. For all the **30** years I have spent in estimating and building I would not be without it for twice the cost.

Name .....

Address .....

THE BUILDERS' AUXILIARY COMPANY, 325 Old South Bldg., Boston, Mass.

The VOLTZ UNIVERSAL SASH BAR



Makes any angle, allows for settling of building—keeps windows from frosting. The mostbeautiful,practical and durable bar in the world. Made in metal.

"Holds with a grip of iron, yet with a touch of velvet." Glass set from the outside. **More good features explained in our catalog — it's fine — send for a copy before you build or repair.** Write today.

VOLTZ MFG. CO.

1102-1104 S. 8th Street, :: St. Joseph, Mo.

HARTMANN-SANDERS CO.

Originators of the
"Lock Joint" Stave Columns



Universally Recognized

As the leaders in Architectural Beauty and Quality.

When other houses were selling columns of thin material, because they could be sold at less price, we steadfastly refused to cut our quality.

We continued to resist every effort to get us to cheapen our goods—put in thin material—sacrificing quality and beauty.

But we are glad we stood the test, **that's why** we are selling more columns today than ever before.

Ask for Catalogue "T"—it's worth having for any **Home Builder**

We manufacture a full line of porch material and Interior Hardwood Columns.

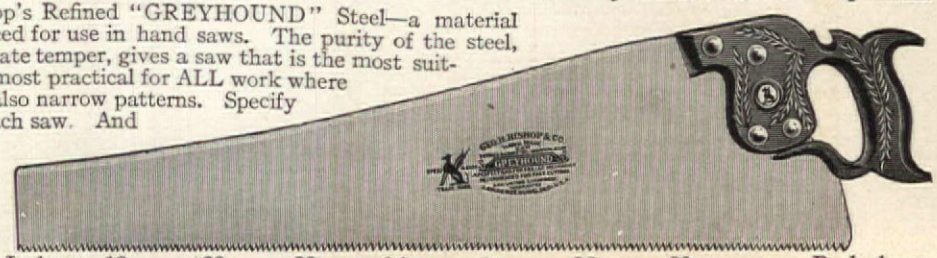
2155 ELSTON AVENUE - CHICAGO, ILL.

GREYHOUND HAND SAWS

SPEED & EASE
TRADE MARK.

The more you know about hand saws the more you can appreciate "GREYHOUND" hand-made hand saws, with their easy-running and rapid cutting qualities and wonderful durability. This saw will be imitated by others—but not equalled.

They are made from Bishop's Refined "GREYHOUND" Steel—a material which leads everything yet produced for use in hand saws. The purity of the steel, the toughness, the even and accurate temper, gives a saw that is the most suitable for particular work, and the most practical for ALL work where a hand saw is used. Made in both straight and skewback, also narrow patterns. Specify which you desire. Remember our warranty accompanies each saw. And the warranty means that if 30 days' trial does not convince you that the "GREYHOUND" saw is the **best** for your use, you get your money back.



Order one today and let us take all the risk. If you want literature first, write us.

GEO. H. BISHOP & CO., Makers
Lawrenceburg, Indiana

Inches,	18	20	22	24	26	28	30	Net.	Packed one in a Box
Each,	$2.35	$2.50	$2.65	$2.80	$3.00	$3.30	$3.65		

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.



E. C. S.

KEEN KUTTER

Special Slim Taper Files

Particularly adapted for filing fine saws. These files are cut with a very thin edge and are in every respect the equal in quality and cutting of the larger sizes.

Every one guaranteed, and, if not entirely satisfactory, money refunded. If not at your dealer's, write us.

SIMMONS HARDWARE COMPANY (Inc.)
Div. No. N. B. St. Louis and New York
U. S. A.

Last a Lifetime and Give Satisfaction to the End!



The Famous Barton Planes and Edge Tools for Carpenters and other workers in wood

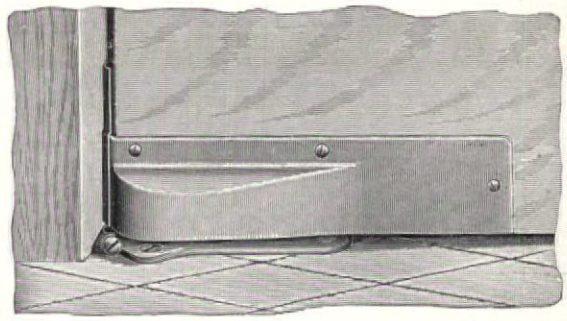
Unequaled by any other make for keen, smooth, lasting edges. If your hardware dealer does not handle these **Famous Barton Tools** and is unwilling to order for you, send direct for catalogue. Be sure to specify **Carpenter's Catalogue.** A postal will bring it, together with our story book "True Stories," which will be found very interesting and instructive to those who are satisfied with the best tools only.

D. R. BARTON 1832 ROCHESTER, N.Y.

MACK & CO., Sole Makers

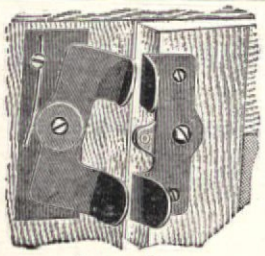
Brown's Race Rochester, N. Y.

1910 "Standard" Floor Hinges



sell because they are the best type and latest improved, **Up-to-Date** kind. 1909 automobiles were the best last year, but now they are a "back number." "Ketch" on? Hardware dealers supply them. If yours don't, WRITE US.

The STANDARD MFG. CO., Shelby, Ohio



Screen Door

THE SENSIBLE SCREEN DOOR CATCH

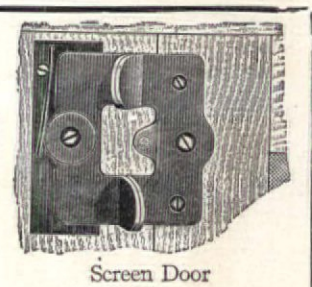
A New Idea

The Sensible is the Catch that catches securely but quietly—prevents the door from warping, keeps out the flies, and reduces the noise of slamming to the minimum. Note the simple adjustment. Illustrations in this advertisement show catch one-third of actual size. Write for prices. Sample set mailed upon receipt of 25 cents.

MANUFACTURED BY

R. G. Winter Manufacturing Co.

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Screen Door



THE LUXURY OF A LAKE TRIP

Where will you spend your summer vacation? Why not enjoy the charms of our Inland Seas, the most pleasant and economical outing in America?

Daily service is operated between Detroit and Cleveland, Detroit and Buffalo; four trips weekly between Toledo, Detroit, Mackinac Island and way ports; three trips weekly between Toledo, Cleveland and Put-in-Bay.

A Cleveland to Mackinac special steamer will be operated two trips weekly from June 15th to September 10th, stopping only at Detroit every trip and Goderich, Ont., every other trip.—**Special Day Trips Between Detroit and Cleveland, During July and August.—Railroad Tickets Available on Steamers.**

Send 2 cent stamp for Illustrated Pamphlet and Great Lakes Map.

Address: L. G. Lewis, G. P. A., Detroit, Mich.
Philip H. McMillan, Pres. A. A. Schantz, Gen'l Mgr.

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CONCRETE MACHINERY

The greatest mixer made All kinds of styles of the latest cement block and brick machines and molders from $5 and up; in fact WE MAKE EVERYTHING IN CONCRETE MACHINERY (low prices but high grade) GET CATALOG N. FREE.

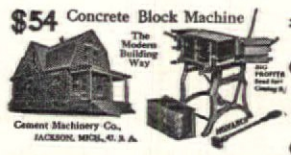
SYSTEMATIC CONCRETE MIXER

28 ADVANTAGES



CEMENT MACHINERY COMPANY

$54 Concrete Block Machine



CEMENT IS CHEAP—BIG PROFITS

making concrete products and building sidewalks. Get a mixer. Get started. Prospects brighter than ever; things are going to boom in the cement industry. Get free Catalog "N."

CEMENT MACHINERY CO., Jackson, Michigan

CUSTOM MADE FLY SCREENS



Our work is far superior to the usual output of local mills and has a style and finish not obtainable from those who do not make a specialty of FINE SCREENS

Our screens are made from kiln dried lumber and have waterproof coped joints and the frames are weather-proofed before the finishing coats are applied.

Best grades of Wire Cloth, Enameled, Galvanized, Genuine Bronze, fastened by most approved methods.

Our new "Ironwood" Screen is the cheapest good Custom Made Screen yet produced

Intending purchasers may have free by mail sample of woods, finishes, wire cloth and a copy of catalog. Agencies in nearly all large cities. Agents wanted in smaller cities.

Special Terms to Contractors and Builders. Delivered prices will be quoted. Goods laid down at your railway station

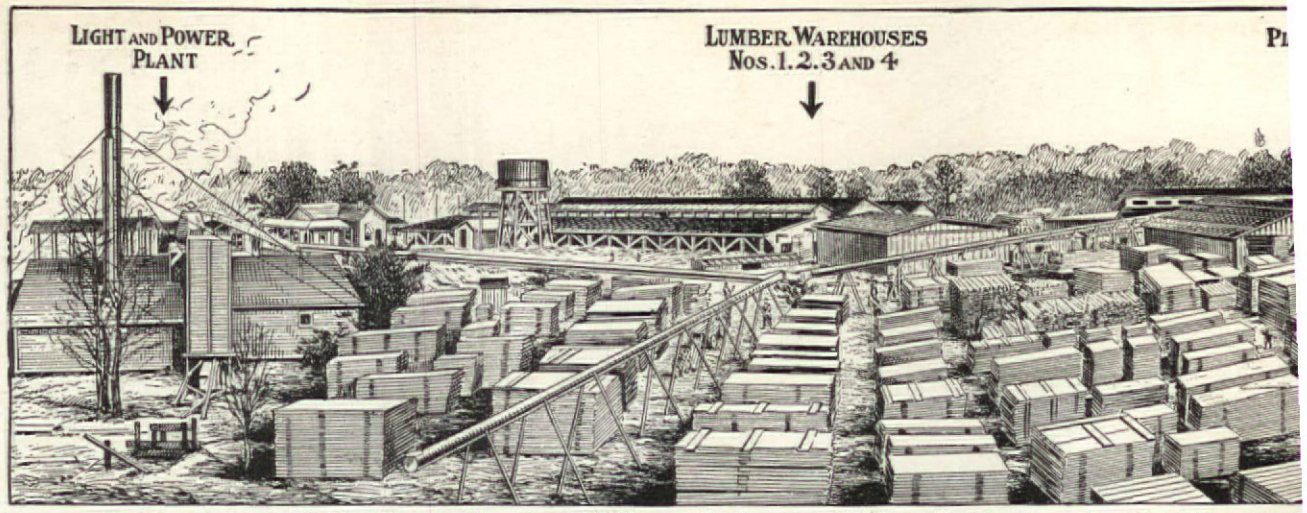
A. J. PHILLIPS & CO., Le Roy Street, Fenton, Mich.

28 Years Experience. 3½ Acres of Floors

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N. B.

The Finest Timber in the World Converted Into Lumber and Shipped Direct to You From Our Own Mills.



Sears, Roebuck and Co.'s Great Lumber Mills and Yards at Mansfield, La., in the Heart of

SUPPLY YOUR LUMBER NEEDS FROM

Why buy your lumber in dribs at high retail prices when you can buy from us in carload lots for t prices or less than your retail dealer pays? A barn or building of ordinary size requires at least a carload of

You Are Paying Too Much for Mill Work and Building Material



A Price Manual That Should Be on Every Builder's Desk.

"I would not take $5.00 for my Mill Work Book."

G. W. VAN-HOOSER, Dansville, N. Y.

IN THIS SPLENDID BOOK, the latest edition of which has just come from the press, we quote bed rock prices on more than 5,000 items. Our prices are not only the lowest, but our stock is also the largest and the best. You can buy the very latest designs in Craftsman doors and trim for about the same price which you pay for the ordinary doors in the local market. We can save you fully 50 per cent on magnificent massive buffets and china closets. Whether you are in need of $5.00 or $500.00 worth of mill work, you should have our new catalog in order to get the biggest possible value for your money.

JUST GLANCE OVER THE FOLLOWING PRICES on a few items selected at random from our new Building Material and Mill Work Catalog:

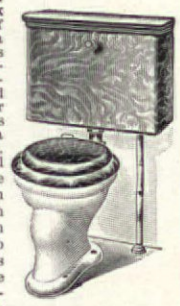
$ 1.50 Doors	$ 0.95
2.00 Windows	1.10
1.00 Moldings, per 100 feet	.25
75.00 Stairs	22.80

WHY WE CAN QUOTE YOU THESE EXTREMELY LOW PRICES: The big mill work factory from which we ship your order carries a stock on hand at all times upward of **half a million dollars.** Manufacturing our material in such huge quantities enables us to control the raw material, and our big sales make it possible for us to operate with the smallest margin of profit. **You reap the benefit.**

DO YOU KNOW THAT THERE IS NOT A SINGLE STATE IN THE UNION INTO WHICH WE HAVE NOT SHIPPED OUR MILL WORK? Right in your own state are hundreds of people regularly doing business with us, and we will be glad to send you copies of unsolicited letters which they have written us telling of the good quality of our material, the big saving which we enable them to make, and the prompt and careful manner in which we ship the material.

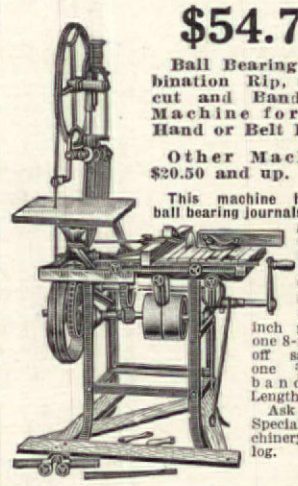
Clip the coupon today, fill it in and mail it to us, or mention this magazine, and we will send you by return mail, postage prepaid, our great Building Material and Mill Work Catalog, which may be the means of saving you more than $1,000.00 during the present year.

Low Down Closet Combination, $12.25



Think of a low down combination, the tank of which is made of kiln dried oak with a beautiful golden gloss finish, capacity 6½ gallons, lined with 10-ounce copper, fitted with a combined lever ball cock which is guaranteed to stand a pressure of 150 pounds, with a rubber ball valve, the most simple and serviceable valve on the market, and with china push button in front of the tank to operate it. The seat is made of the same grade oak and is furnished with cover, with heavy N. P. brass offset hinges. The bowl is made of the highest grade English vitreous ware, is a siphon wash down pattern, absolutely perfect in every way. Furnished complete with N. P. brass supply pipes.

Copy these specifications and ask your local merchants at what price they will furnish you an outfit of this kind. This is no leader or bargain sale, but a sample of the wonderful values we are offering in our 44-Page Plumbing Catalog, which contains a complete line of plumbing fittings and fixtures, and which is free for the asking. May we send you one?



$54.75

Ball Bearing Combination Rip, Crosscut and Band Saw Machine for Foot, Hand or Belt Power.

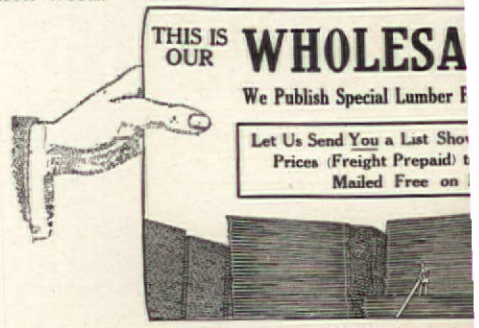
Other Machines $20.50 and up.

This machine has five ball bearing journals, one rip guide, one angle adjustable crosscut guide, one 10-inch rip saw, one 8-inch cut-off saw and one ⅜-inch band saw. Length, 12 feet. Ask for our Special Machinery Catalog.

We are independent lumber man turers. We control the raw material which it is produced. Our price re sents the actual cost of manufacture one small reasonable profit. We em no middlemen.

How Can You Compete with another c builder or carpenter who buys his lumbe at a saving of 25 per cent of the prices yo pay a local dealer, unless you follow his

Your Success Must Depend (very soon not already) upon your knowing where yo your lumber and building material and s the lowest prices and to the best advanta knowledge is worth as much to you as standing of any new method or feature of tion work.



A few items picked at rando Lumber Price List, showing OUR our mill. Let us send you our D WHOLESALE PRICE LIST, sh these and other items of lumber co in YOUR town.

1x4 Boards, 10 to 20-foot lengt per 1,000 feet board measure.

No. 1 grade.....
No. 2 grade.....
No. 3 grade.....

Take Another Look at the illustration great lumber yard. It is reproduced from a photograph, taken recently, and tells its ow Here we keep on hand constantly a stock 15,000,000 feet of dimension timber, ceiling flooring, finishing and other lumber, soft flooring, cedar shingles, cypress shingles, lumber, pickets, lath, etc. We can fill yo order, whether large or small, without de without substituting.

Remember that your purchase is loaded cars in this yard (and in the near future f Illinois yard) and unloaded at your freigh You save all the expense of several unn handlings, as well as two substantial profits—the jobber's and t dealer's.

Our Lumber Is Not Regraded. We guarantee all stock to run width and thickness, and all tongue and groove material to be a uniform. If you can use poor regraded stock on some of your w not increase your profits by buying Southern mill grades from us an ing the lumber yourself?

GET OUR PRICES ON ROOFING

We Can Save You $50.00 on the Average Size Roof.

A few of the remarkable values shown in our latest Roofing Catalog:

Tarred Felt Roofing.	Best quality, 108 square feet, 85-cent value. Price, per roll	$0.50
Rubber Asphalt Roofing.	The ordinary kind, 108 square feet, $1.25 value. Weight, 34 pounds. Price, per roll	.79
Flint Coated Rubber Roofing.	108 square feet, $1.65 value. Weight, 50 pounds. Price, per roll	.95
Corrugated Steel Roofing.	28-gauge, heavy, painted red, 100 square feet. $2.50 value	1.85
Best-of-all Roofing.	3½-ply, 108 square feet, $3.50 value. Weight, 60 pounds. Price, per roll	1.80

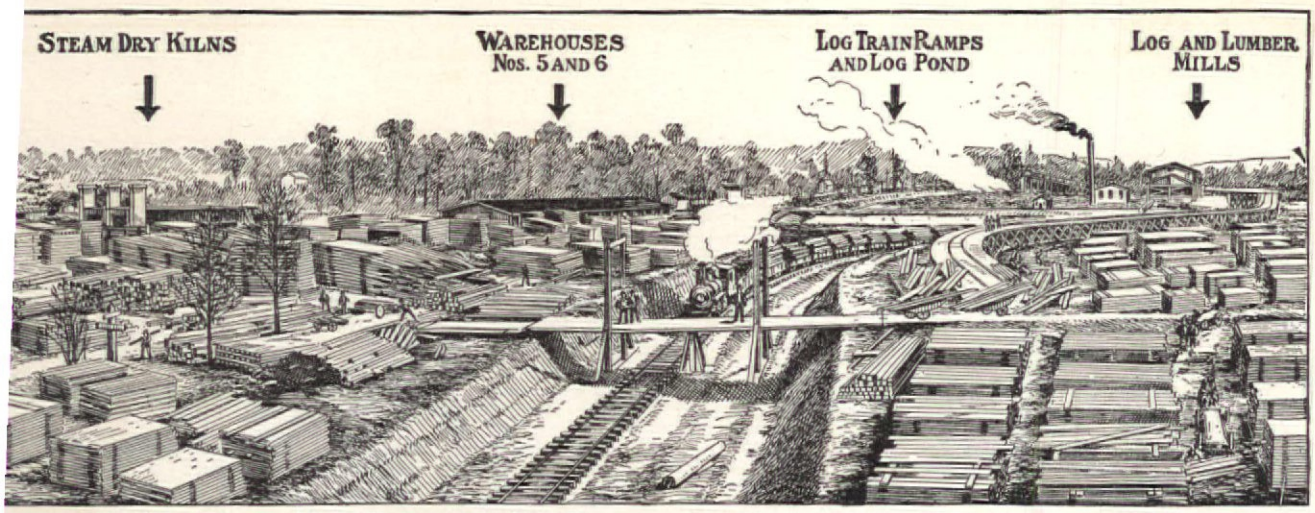
Send us your business card or write on your printed letterhead and we will send you a complete layout of roofing samples, as well as our latest Roofing Catalog. Every price in this Roofing Catalog shows a saving of 25 to 50 per cent over retail prices.

Your Money, Including Any Freight Charges You H

SEARS, ROEBUCK A

☛ WATCH FOR

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.



We Save You $100.00 to $150.00 on a Small Carload of Lumber.

nber District. (We Also Have Another Big Lumber Plant in Course of Construction in Illinois.)

RMOUS STOCK AT WHOLESALE PRICES

e save you the profit you have been paying the retailer and the cost of handling the lumber through two or niddlemen, which you have also been paying. Read the facts; they are of vital importance to you.

The control of coal and lumber prices long been out of the hands of the blic. We have restored lumber prices a fair basis. Wideawake contractors l builders are alive to the great bene- our plan provides.

Can Save You $100.00 to $150.00 on an carload of lumber. Think what this means n the extension of your field of operations growth of your business!

Plan Is Not an Experiment. We have been lumber and mill work to every state in the or the past three years. Letters from thou- pleased customers show that we are able to em from $6.00 to $10.00 a thousand feet, they live in New Jersey, Colorado, Montana da.

R PRICE LIST

es" to Every City in the United States.

annot wait for our delivered Lumber Price List, UR LIST, we will gladly mail you our bid quoting es on your entire bill of lumber or mill work. however, will be exactly the same as the d in our wholesale price list.



Bevel Siding, clear grade. Price,) feet board measure.....**$16.00**
Dimension Lumber, 12, 14 or 16- ths. Price, per 1,000 feet board

grade.....**$11.50**
grade..... **9.85**
ur complete assortment and wholesale end for our Delivered Wholesale Lum-

e Guarantee Every Foot of Lumber in our stock strictly Southern mill grades. Our great saw situated at the edge of the timber tract in the of America's finest timber district, is sur- by none in the character of its equipment. operation in the manufacture of our lumber, the selection of the standing timber to the g and loading of the finished product, is in nds of experts.

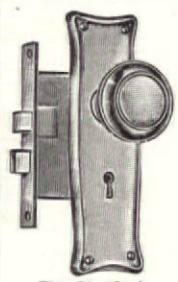
e Can Make Shipment Within 48 Hours After t of Order and guarantee every shipment ich you in perfect condition. So perfectly zed is our service that we are able to make ete shipment of any ordinary order within a ours following its receipt. All orders are handled and loaded by men erience, so that we can guarantee its safe delivery to you.

gin Now to Make More Money. Make up an order for a carload of lum- end it to us and let us open your eyes to the possibilities of our or increasing your profits. Any kind of an order will serve to demon- our ability to save you money.

Cheerfully Returned If You Are Not Perfectly Satisfied

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AD NEXT MONTH



98c
Stratford Design Genuine Bronze Lock Set

For Inside Doors. Full size. Unsurpassed finish in sanded or polished antique copper or lemon brass. Regular value, $1.50.

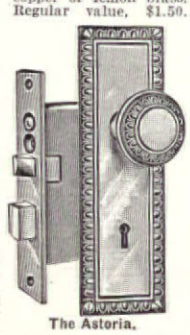
The Stratford.

$1.77
Astoria Design

One of Our Handsome Front Door Lock Sets.

A $2.50 value.

Genuine bronze three-tumbler lock. Strictly high grade. Sanded or polished antique copper or lemon brass finish.



The Astoria.

Every item in our complete line of builders' hardware offers similar savings. Write for our Special Hardware Catalog.

From Our Factory to You

Seroco Ready Mixed House Paint



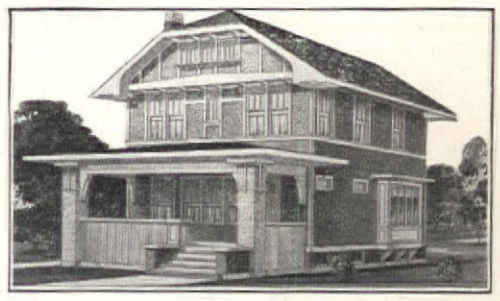
Guaranteed Like No Other

We Grind and Mix It Ourselves.

$1.10 to $1.23
a Gallon According to Quantity

Send for Color Samples and Catalog of Our Complete Line of Paints and Varnishes.

$1,050.00

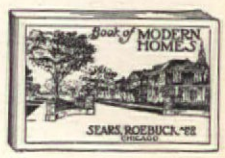


FOR ONLY $1,050.00 we will furnish all of the material to build this large six-room frame house, brick, cement and plaster excepted. To give you an idea of the high grade material we specify, we direct your attention to just a few items as follows: Clear narrow bevel cypress siding, *A* cedar shingles, fir edge grain porch floors, clear oak and maple flooring and pure white tile flooring in the bathroom, Craftsman design oak doors, stairway and trim for the first floor, clear birch doors and trim for the second floor, a beautiful rustic fireplace with two colored glass windows on each side in the living room, and a massive oak buffet of the latest Craftsman design, with seats on each side, covering the entire end of the dining room.

$2,000.00 WILL NOT BUY YOU A BETTER AND MORE HIGH CLASS BILL OF MATERIALS IN YOUR LOCAL SOURCE OF SUPPLY. The difference between $1,050.00 and $2,000.00 represents your saving when you place an order with us for a complete house bill of the size and design illustrated above. We are enabled to make you this big saving because we are producers of lumber and sell the best mill work made at wholesale factory prices. We offer to sell you, Mr. Contractor, on the very same basis the local lumber dealer pays when dealing with his source of supply. You save the retailer's profit.

OUR BOOK OF MODERN HOMES illustrates, describes and prices nearly 100 houses for which we furnish all of the material at amounts ranging from $153.00 to $1,521.00. For each one of these houses we give complete building plans, typewritten specifications and an **itemized bill of materials** (our bid), placing at your command the best architectural service that can be procured.

TO PROVE TO YOU THAT OUR HOUSES ARE MASTERPIECES in design, substantial in construction, and can be built at an immense saving, we print in our Book of Modern Homes twenty-two photos of houses built according to our plans and with our material, together with letters from the builders telling of their experience. Thousands of dollars have been expended by us to make our Book of Modern Homes a really helpful building guide for contractors, carpenters and everybody interested in that line. You can't afford to be without it. Use the coupon today and ask us to send you a copy.



☐ Wholesale Delivered Lumber Price List.	**Sears, Roebuck and Co., Chicago, Ill.**
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☐ Catalog of Home Heating Systems.	Name _____
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Send us Two or More Names of persons who are interested in or want to buy Hot Water Heating Plants and we will send you this scale. Back inches are divided into 6, 10, 12, 16, 20 and 40 parts. Also free catalog on request. Name this paper when writing.



ANDREWS HEATING CO.
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TO INTRODUCE
The SELF-SETTING PLANE
(As long as this Ad appears.)

Any dome in this paper is good for one dollar, in payment for a **Self-Setting Plane,** if sent us with the balance of the list price of a Plane from where our Planes are not sold.

If you want more than one Plane and they are not sold in your town we will allow you dealer's discount.

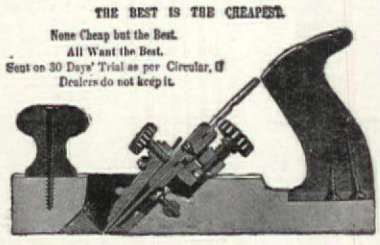
List price of **Beech Wood Planes:** Smother $3.25, Jack $3.50, Fore $3.75 and Jointer $4.50.

Do not say the price is too high until you try it, then if the Plane is not worth to you, twice its cost, return it at our expense and the trial won't cost you a nickel.

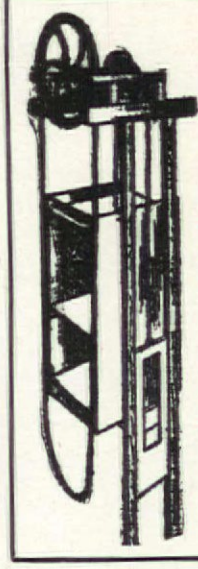
Get one on trial now and let the Plane talk for itself. You run no risk, as this paper guarantees we will do as our advertisement says.

If you don't want a **Self-Setting Plane** now, send us a dome and the addresses of ten carpenter friends, no matter where they live, and we will send you a hard, tough, carpenter's pencil and circulars.

THE BEST IS THE CHEAPEST.
None Cheap but the Best.
All Want the Best.
Sent on 30 Days' Trial as per Circular, if Dealers do not keep it.



Gage Tool Co. VINELAND, NEW JERSEY

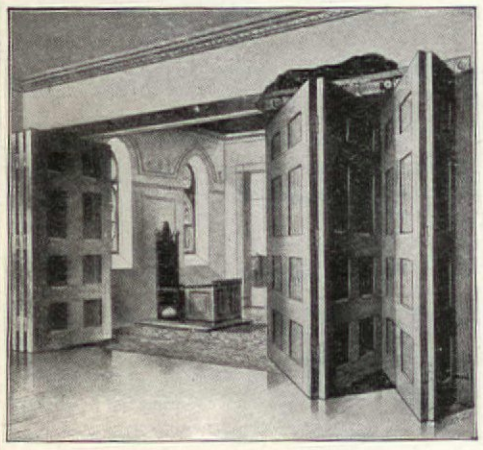


The Excelsior Dumb Waiter

Sent complete to a nail $18.50
Knocked down, ready to erect

Self-Retaining Machine. Hardwood Car. Ropes, Guides, Weight, Lumber and Hardware. No splicing necessary. Explicit working directions sent with every outfit. We sell direct to the consumer, and give an up-to-date Waiter for the price of an inferior one. Send for Descriptive Pamphlet.

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ORDER RICHARDS No. 135
BALL BEARING SWIVEL HANGERS

AUDITORIUM BALL BEARING FOLDING DOOR HANGERS

For Your Church Job

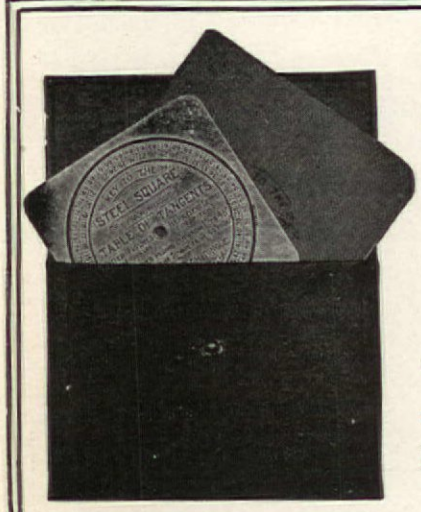
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Cement Books

How to use Portland Cement	$0.50
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PUBLISHERS
358 DEARBORN STREET
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Wood's Key to the Steel Square

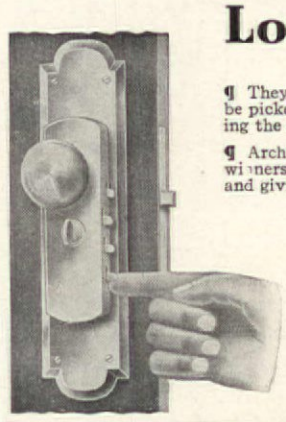
Has been tried by thousands of Builders and not found wanting. It is a wonderful instructor as to the uses of the square in obtaining cuts and bevels for all kinds of work.

Made of celluloid and put up in neat leather case of pocket size, so that it can readily be carried on the job. It is a snap at our low price of $1.50.

Send your order at once and it will be shipped prepaid to your address

HODGSON BOOK CO.
358 Dearborn St., Chicago

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¶ They are handsomely made in different finishes—cannot be picked—are easily and instantly opened by simply touching the right sentinel as shown here.

¶ Architects, contractors and carpenters will find them money winners—meeting every want in locking and opening doors, and giving absolute protection.

SALESMEN WANTED

¶ Let us tell you about them—also about our padlock having 38,005 combinations. Write today.

THE
Dayton Keyless Lock Co.
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THE "EUREKA" SPIRAL SCREWDRIVER

PUSH ON THE **HANDLE and THE SCREW GOES IN**



Will Drive a Screw in Hard or Soft Wood
QUICKER AND EASIER THAN ANY OTHER
THE "EUREKA" SPIRAL SCREWDRIVER
is made in two sizes from the highest class materials—No. 1, 14 in. long opened, 9 in. closed; and No. 2, 19 in. long opened, 12 in. closed. Can be used as an ordinary screwdriver.

GET ONE TODAY FROM YOUR DEALER

DECATUR COFFIN CO., E. North St., DECATUR, ILL., Manufacturers

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PASTE THIS DOME ON LETTERS
THAT YOU WRITE ADVERTISERS.
IT WILL HELP.

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Our enormous purchases of Bankrupt Stocks, Sheriffs' and Receivers' Sales make it possible for us to quote prices that mean a positive saving to you of from 30 to 75%.

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OUR STOCK includes practically everything under the sun. Millions of dollars worth of brand new high grade merchandise bought by us at various sales is offered to the public at prices usually less than the original cost of production. We offer an exceptional opportunity to those who buy now, so send us a trial order. This will convince you.

SAVE 30 TO 50% Get our prices on Lumber, Roofing, Tanks, Pipes, Plumbing and Heating Goods. Our catalog shows over 50,000 bargains, in almost everything you use or buy daily. You need this catalog.

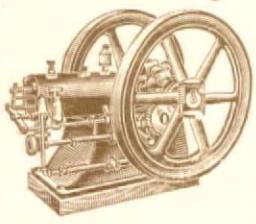
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Equip Your Carpenter Shop with the Most Economical Power Known to Modern Science

The latest and most modern types ever placed before the buying public. Economical both in *price* and *consumption* of fuel. Will produce more *horse power* for *every gallon of gasoline used* than any other Engines in the market today. Brand new direct from factory.

Price Wrecking Bargain 8 and 12 H. P. ENGINE **only $200 AND UP**



We are willing to have our Superior Heavy Duty Gasoline Engines compared with any on the market no matter what the price. Built with the greatest care and every mechanical detail is carefully provided for. Best Engine for all around work on the farm and in the factory. Most popular Engine we handle, powerful and reliable, made for heavy work and continuous service. The 8 horse power is large enough for the ordinary work on the farm, also for elevators, factories, etc. The 12 horse power we recommend for small threshers, silo fodder cutters, etc.

30 Days' Free Trial AT OUR EXPENSE | **OUR GUARANTEE PROTECTS YOU**

Our two horse power "Superior" Engine is designed to meet the demand for a low priced Engine to take the place of Wind Mills, Hand, Foot or small Tread Power. The four horse power is designed for general farm or machine shop work.

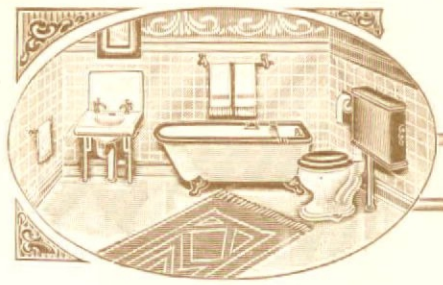
The simplicity of construction makes them the most serviceable, easy to operate and Practical Gasoline Engine ever produced. We can recommend them with the utmost confidence to our patrons to give entire satisfaction.

They are just as convenient as any Electric Motor or Windmill would be for pumping water, running cream separator, washing machine or other labor saving devices in the house. It does not require any more practice or experience to run or keep these engines in order than the Motor or Windmill.



2 H. P. $36.00 **4 H. P. $64.00**

PLUMBING AND HEATING



Complete Bathroom Outfit
As Illustrated Only **$37.50**

GUARANTEED

Price Wrecking Opportunities

To obtain high grade, brand new Plumbing Material at prices that mean a Positive Saving of at least One-half. We can equip the Home, Factory or any Public Building throughout with a Plumbing and Water System that we will guarantee to be as good as you can purchase anywhere in the land. Send for our "Plumbing Catalog," filled with valuable information, and authority on perfect sanitation, FREE UPON REQUEST.

MODERN HEATING SYSTEMS

In offering to the public our **"PERFECTION BOILER AND HEATING SYSTEM"**

We are confident that we have reached the ACME OF PERFECTION and have solved the question of Heating your Home or Factory for all time to come. Our Heating Systems are the result of tests, experiments and scientific research conducted by expert Heating Engineers and we guarantee them to



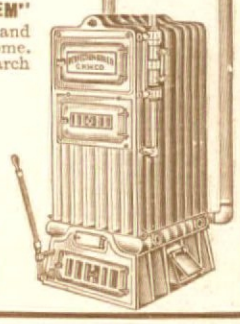
HEAT YOUR BUILDING

That is what you want and are paying for.

We operate our own factory and are thus able to save you the retailer's profit and quote prices that mean an enormous saving to you.

Send us a plan or diagram of your building and let us make you an estimate.

Fill out the Coupon below and send for our Heating book; it will give you valuable information and SAVE YOU MONEY.



GOLD MEDAL ROOFING



Rawhide Stone Faced "Gold Medal" Roofing, put up in rolls of 108 sq. ft. sufficient to lay 100 sq. ft. or (one square) complete, with large head nails and liquid cement for laps. Approximate weight, 58 pounds to the roll. **Price per roll complete $2.13**

FREIGHT PREPAID at above price to States of Illinois, Indiana, Iowa, Ohio, Wisconsin and Michigan.

This Roofing will outwear and outlast any other Ready Roofing on the market. Finished Stone Faced Surface requiring no painting when laid. Unexcelled for homes, barns, warehouses, stores and in fact buildings of every kind **where long service and economy** is desired.

HOW MADE. Only the best long fibre woolen felt is used. **Of extra heavy weight and strength.** Thoroughly saturated with absolutely pure asphalt. Over this is given an additional mechanical treatment, making it more wearproof and durable. **Covered on both sides** with fine powdered marble, giving it a beautiful appearance, also adding to its **fireproof** qualities.

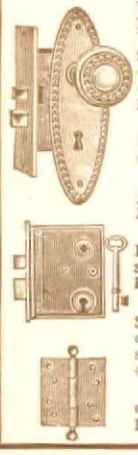
STEEL ROOFING
PER 100 FEET, $1.60



100,000 Squares of New Steel Roofing which we are selling at the following prices freight prepaid:
Flat.. $1.60
Corrugated, V Crimped or Standing Seam.....$1.65

At these prices we prepay freight to all points east of Colorado except Oklahoma and Texas. Quotations to these points on application. Our high grade **Galvanized Rust Proof Roofing** at prices ranging from $3.00 per square up. Write today for Free samples and Great Book on roofing.

SAVE 30 PER CENT IN NEW HARDWARE



Wilmette Design Inside Door Lock Sets; Lot No. 4-A-1608, 2000 sets as illustrated. Wrought steel, antique copper finish, plated front mortise locks 3¾x3¼, one plated key, one pair knobs two escutcheons, packed complete with screws. **Per set**.....$0.47
Per dozen.....$5.20

Lot No. 4-A-1604. Wilmette Wrought Steel, Copper Finish Front Door Sets.
Complete, per set.....$1.40

Lot No. 4-A-699. Upright Rim Knob Locks, japanned, complete as illustrated and shown, **Each**.....$0.10 **Per dozen**.....$1.10

Lot No. 4-A-706. Mortise Door Locks. Japanned, complete as shown. Each.....$0.25
Per dozen.....2.75

Lot No. 4-A-719. Wrought Steel, ball tipped, loose pin butts, copper finish, complete with screws, 3x3, 16c, 3½x3½, 17c, 4x4, 21c per pair.

Lot No. 4-A-753. Sash Locks, copper finish. **Each**.....$0.05
Per dozen.....48

STRUCTURAL STEEL BARGAINS

Over 10,000 tons of plain and fabricated steel and Builders' Iron Work in stock for immediate delivery. We save you 20 to 40 per cent on Structural steel work of every description, also Builders' Iron Work. Write for copy of our Great Book, "Structural Steel News." Send us a list of your wants for prices.

STRUCTURAL STEEL SHAPES

STEEL "I" BEAMS



Illustration shows "I" Beams which are made in standard sizes ranging from 3 to 24 inches high.

STEEL CHANNELS



Cut shows Steel Channels which are made in standard sizes, ranging 3 to 15 in. high.

STEEL ANGLES



Illustration shows Angle Steel, made with equal and unequal legs, ranging from ¾x¾ to 8x8 inches.

STEEL TEES



Cut shows Steel Tees made with equal and unequal legs, ranging from 1x1 to 1x4 inches.

NOTE—When writing for prices on Structural Steel Shapes, please state quantity, pattern, sizes and lengths. We can furnish all shapes cut to any length desired.

FILL OUT THIS COUPON

Chicago House Wrecking Co., Chicago:

I saw your advertisement in June, 1911, National Builder. I am interested in the following items: 833

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Do You Want Gasoline Engine Book? ——— Do You Want Free "Book of Plans"? ———
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My Name _____

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FREE VALUABLE BOOKS FOR SHREWD BUYERS

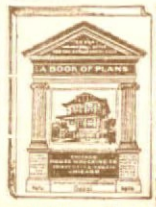
MAIL COUPON AND MARK BOOKS YOU NEED

"GASOLINE ENGINES"



Illustrates, describes and quotes the "Superior" Gasoline Engines. They are, without question, the best engine made, and offered to you at bargain prices. By reading this book you can become familiar with the method of operating Gasoline Engines successfully. **Write for free copy today.**

OUR BOOK OF PLANS



This is the handsomest **illustrated book of designs of over 100 Bungalows, Houses and Barns** ever produced. It contains the productions of Photos and is true to life in every way. Also a very **valuable book for carpenters, contractors or builders.** Sent to you absolutely free. Fill out coupon shown at the left.

ROOFING BOOK



The greatest book on roofing ever printed. Tells you how to lay all styles of roofing, quotes you money saving prices so that you can buy roofing and save 30 to 70 per cent. Write for copy today.

COLD WEATHER COMFORT

A practical treatise on Plumbing and Heating. Explains in detail how you can buy a complete Plumbing or Heating plant from us and easily save 50 per cent. Also quotes Greenhouse Heating plants at extremely low prices. Do not fail to send for copy at once.

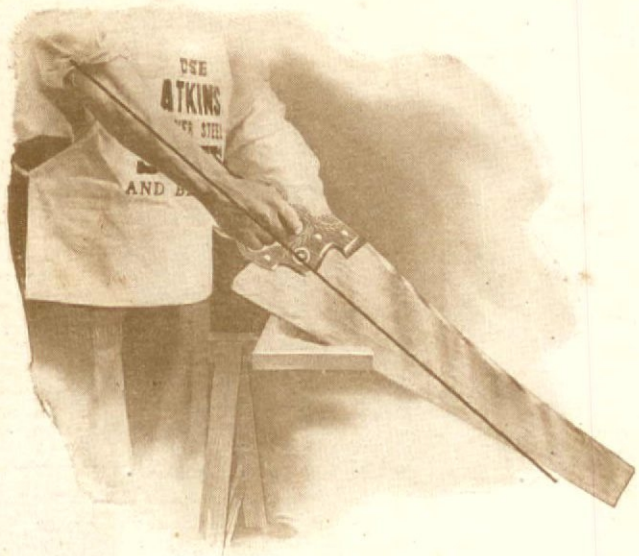


CHICAGO HOUSE WRECKING COMPANY 35TH & IRON STS. CHICAGO

PASTE THIS DOME ON LETTERS THAT YOU WRITE ADVERTISERS. IT WILL HELP.

Two Famous Silver Steel Saws

We want to call particular attention to the two Saws shown in the pictures below. Both blades are of SILVER STEEL—both are Taper Ground—both are genuine ATKINS SILVER STEEL SAWS—BUT the handles are constructed on entirely different principles.



No. 53. Genuine Perfection Handle



No. 51. Old Style Handle

"Pay Your Money and Take Your Choice"

ATKINS No. 53

The picture to the left shows ATKINS No. 53 SILVER STEEL SAW equipped with ATKINS Genuine Perfection Handle and illustrates plainly why this type of handle is easiest on the saw arm. While it may feel strange to the beginner—a few days use will demonstrate that the Perfection Handle is the most *scientifically* constructed and much easier on the saw arm than any other style.

Note the line running through the saw arm straight through the blade to the cutting edge. See how every ounce of power is directed to the point of contact. Observe the wrist and saw arm, how easily and naturally the blade drops into its work without pressure.

ATKINS No. 51

If you are under the impression that all ATKINS SAWS are made with the Perfection Handle, we wish to particularly call your attention to the saw shown to the right. This handle is similar to the old straight across handle that you may have been using heretofore. Note the saw arm in this case and see that the pressure back of the saw arm is *not* directed on the cutting teeth, but rather to the back of the saw. Notice this wrist and see how it is necessary to push downward in order to secure proper contact. But even with this old style handle, the No. 51 is superior to any other, because the blade is made of genuine SILVER STEEL (our own exclusive formula) and is Taper Ground, which enables it to run free and easy, even in wet lumber, with but little set.

If you do not wish to try the Perfection Handle, then try the No. 51. Either of these saws or any of our other popular numbers may be purchased through your regular dealer, who should order for you from his wholesale house in case he does not carry them in stock. If he will not order for you, let us know and we will see that you are taken care of. Be sure to see that our name, E. C. ATKINS & COMPANY, and the words, "SILVER STEEL," are on the blade. None other are genuine.

OUR FREE OFFER

We are securing the names of high class mechanics who appreciate fine tools and if you will send us ten cents in stamps to pay postage, we will mail you one of our fine carpenter's nail aprons, Saw Sense Book, Time Book, and a great deal of useful information on the purchase and care of saws. Write today and learn "Who's Who" in the saw world.

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